
IDAHO GROUND WATER QUALITY PLAN

Protecting
GROUND**WATER**
Q · U · A · L · I · T · Y
I N I D A H O



IDAHO GROUND WATER QUALITY PLAN



Prepared by the Ground Water Quality Council
in cooperation with the:

Idaho Department of Health and Welfare
Division of Environmental Quality,
Department of Water Resources, and
Department of Agriculture

December 1996

THE STATE OF IDAHO
CENTENNIAL LEGISLATURE FIRST REGULAR SESSION – 1989

IN THE SENATE

SENATE BILL NO. 1269

BY STATE AFFAIRS COMMITTEE

AN ACT

1 RELATING TO GROUND WATER QUALITY; AMENDING SECTION 39-102; IDAHO
2 CODE, TO PROVIDE LEGISLATIVE INTENT REGARDING GROUND WATER
3 QUALITY; AMENDING CHAPTER 1, TITLE 39, IDAHO CODE, BY THE
4 ADDITION OF NEW SECTIONS 39-120, 39-121, 39-122, 39-123, 39-124, 39-125, 39-
5 126 AND 39-127, IDAHO CODE, TO DESIGNATE THE DEPARTMENT OF
6 HEALTH AND WELFARE AS THE PRIMARY AGENT TO COORDINATE AND
7 ADMINISTER GROUND WATER QUALITY PROTECTION PROGRAMS FOR THE
8 STATE, TO PROVIDE THE SCOPE AND DUTIES OF THE GROUND WATER
9 QUALITY COUNCIL AND CERTAIN STATE AGENCIES, TO DEFINE TERMS, TO
10 CREATE THE GROUND WATER QUALITY COUNCIL, TO PROVIDE FOR COMPLETION
11 OF THE GROUND WATER QUALITY PLAN, TO PROVIDE FOR ADOPTION,
12 AMENDMENT OR REJECTION OF THE PLAN BY THE LEGISLATURE, TO
13 PROVIDE FOR A CHAIRMAN AND QUORUM OF THE GROUND WATER
14 QUALITY COUNCIL, TO PROVIDE DUTIES OF STATE AND LOCAL
15 GOVERNMENTS REGARDING THE GROUND WATER QUALITY PLAN, AND
16 TO PROVIDE FOR LIABILITY FOR APPLICATION OF A PESTICIDE OR FERTILIZER
17 PRODUCT; AMENDING CHAPTER 65, TITLE 67, IDAHO CODE, BY THE
18 ADDITION OF A NEW SECTION 67-6537, IDAHO CODE, TO PROVIDE FOR
19 LOCAL GOVERNMENT'S COMPREHENSIVE PLAN TO GROUND WATER
20 QUALITY; AND PROVIDING A SHORT TITLE.

21
22 Be It Enacted by the Legislature of the State of Idaho:

23
24 SECTION 1. That Section 39-102, Idaho Code, be, and the same is hereby amended
25 to read as follows:

26
27 39-102. STATE POLICY ON ENVIRONMENTAL PROTECTION. 1. It is hereby recognized
28 by the legislature that the protection of the environment and the promotion of
29 personal health are vital concerns and are therefore of great importance to the future
30 welfare of this state. It is therefore declared to be the policy of the state to provide for the
31 protection of the environment and the promotion of personal health and to thereby protect
32 and promote the health, safety and general welfare of the people of this state.

33 2. The goal of the legislature in enacting the ground water quality protection act of
34 1989 shall be to maintain the existing high quality of the state's ground water and to satisfy
35 existing and projected future beneficial uses including drinking water, agricultural,
36 industrial and aquacultural water supplies. All ground water shall be protected as
37 a valuable public resource against unreasonable contamination or deterioration. The quality
38 of degraded ground water shall be restored where feasible and appropriate to
39 support identified beneficial uses.

40 3. In enacting this law, the legislature intends to prevent contamination of ground
41 water from point and nonpoint sources of contamination to the maximum extent practical.
42 In attaining the goals enumerated in subsections 1 and 2 of this section, the legislature
43 wishes to enumerate the following ground water protection goals:

44 a. It is the policy of the state to prevent contamination of ground water from any
45 source to the maximum extent practical.

46 b. The discovery of any contamination that poses a threat to existing or projected future
47 beneficial uses of ground water shall require appropriate actions to prevent further

1 ther contamination. These actions may consist of investigation and evaluation or en-
2 forcement actions if necessary to stop further contamination or clean up existing
3 contamination as required under the environmental protection and health act.
4 c. All persons in the state should conduct their activities so as to prevent the nonreg-
5 ulated release of contaminants into ground water.
6 d. Education of the citizens of the state is necessary to preserve and restore ground
7 water quality.

8
9 SECTION 2. That Chapter 1, Title 39, Idaho Code, be, and the same is hereby
10 amended by the addition thereto of NEW SECTIONS, to be known and designated as
11 Sections 39-120, 39-121, 39-122, 39-123, 39-124, 39-125, 38-126 and 39-127, Idaho Code,
12 and to read as follows:

13
14 39-120. DEPARTMENT OF HEALTH AND WELFARE PRIMARY
15 ADMINISTRATIVE AGENCY — AGENCY RESPONSIBILITIES. 1. The department of
16 health and welfare is designated as the primary agency to coordinate and administer
17 ground water quality protection programs for the state.

18 2. Recognizing that the department of water resources has the responsibility to
19 maintain the natural resource geographic information system for the state and is the col-
20 lector of baseline data for the state's water resources, that the department of health and
21 welfare has the responsibility for collecting and monitoring data for water quality man-
22 agement purposes and that the department of agriculture is responsible for regulating
23 the use of pesticides and fertilizers and for licensing applicators, the department of
24 health and welfare, the department of water resources and the department of
25 agriculture in coordination with the ground water quality council shall:

26 a. Make plans for development and administration of a comprehensive ground
27 water quality monitoring network, including point of use, point of contamination
28 and problem assessment monitoring sites across the state and the assessment of am-
29 bient ground water quality utilizing, to the greatest degree possible, collection and
30 coordination of existing data sources.

31 b. Prepare an annual report during the life of the council detailing the number and
32 concentration of contaminants detected in ground water by location.

33 c. Establish a system or systems within state departments and political subdivisions
34 of the state for collecting, evaluating and disseminating ground water quality data
35 and information.

36 d. Develop and maintain a natural resource geographic information system and
37 comprehensive water resource data system. The system shall be accessible to the
38 public.

39 3. The responsible state departments or boards, after consultation with the ground
40 water quality council, should adopt rules which specify the general standards for deter-
41 mining actions necessary to prevent ground water contamination and cleanup actions
42 necessary to meet the goals of the state.

43 4. The board of health and welfare may adopt, by rule, after consultation with the
44 ground water quality council, ambient ground water quality standards for contaminants
45 for which the administrator of the United States environmental protection agency
46 has established drinking water maximum contaminant levels. The board, after consultation
47 with the ground water quality council, may adopt by rule such ground water quality
48 standards for contaminants for which the administrator has not established drinking
49 water maximum contaminant levels. However, the existence of such standards, or the
50 lack of them, should not be construed or utilized in derogation of the ground water
51 quality protection goal and protection policies of the state.

52 5. The departments of health and welfare, water resources and agriculture should
53 take actions necessary to promote and assure public confidence and public awareness of
54 ground water quality protection. In pursuing this goal, the departments and public
55 health districts should make public the results of investigations concerning ground
56 water quality subject to the restrictions contained in section 39-111, Idaho Code.

1 39-121. DEFENITIONS. As used in section 39-102, Idaho Code, and in sections 39-120
2 through 39-127, Idaho Code:

3 1. "Cleanup" means removal, treatment or isolation of a contaminant from ground
4 water through the directed efforts of humans or the removal or treatment of a contami-
5 nant in ground water through management practice or the construction of barriers,
6 trenches and other similar facilities for prevention of contamination, as well as the use
7 of natural processes such as ground water recharge, natural decay and chemical or bio-
8 logical decomposition.

9 2. "Contaminant" means any chemical, ion, radionuclide, synthetic organic
10 compound, microorganism, waste or other substance which does not occur naturally in
11 ground water or which naturally occurs at a lower concentration.

12 3. "Contamination" means the direct or indirect introduction into ground water of
13 any contaminant caused in whole or in part by human activities.

14 4. "Council" or "ground water quality council" means the ground water quality
15 council created in section 39-122, Idaho Code.

16 5. "Ground water" means any water of the state which occurs beneath the surface of
17 the earth in a saturated geological formation of rock or soil.

18
19 39-122. GROUND WATER QUALITY COUNCIL CREATED. 1. There is hereby cre-
20 ated the ground water quality council. Membership on the council shall consist of the
21 following:

- 22 a. The director of the department of health and welfare or his designee.
- 23 b. The director of the department of water resources or his designee.
- 24 c. The director of the department of agriculture or his designee.
- 25 d. A member of a district board of health appointed by the governor.
- 26 e. One (1) representative of the mining industry appointed by the governor.
- 27 f. One (1) representative of the agricultural industry or the feedlot or dairy industry
28 appointed by the governor.
- 29 g. One (1) representative of the soil conservation districts or the soil conservation
30 commission appointed by the governor.
- 31 h. One (1) representative of an environmental group or organization appointed by
32 the governor.
- 33 i. One (1) member of the general public appointed by the governor.
- 34 j. One (1) representative of the petroleum industry appointed by the governor.
- 35 k. One (1) representative of the agricultural chemical manufacturing or distribution
36 industry appointed by the governor.
- 37 l. One (1) representative of city government appointed by the governor.
- 38 m. One (1) representative of the food processing industry appointed by the
39 governor.
- 40 n. One (1) representative of the manufacturing industry which generates hazardous
41 waste appointed by the governor.
- 42 o. One (1) representative of the hazardous waste treatment, storage or disposal
43 industry appointed by the governor.
- 44 p. One (1) representative of county government appointed by the government.
- 45 q. One (1) representative of a conservation organization appointed by the governor.
- 46 r. Additionally, the governor shall appoint representatives of the university of Idaho
47 college of mines, the university of Idaho water resources research institute, the
48 United States environmental protection agency, the Idaho national engineering labo-
49 ratory and the United States geological survey to serve as ex officio nonvoting mem-
50 bers of the ground water quality council.

51 2. Appointees to the ground water quality council shall serve at the pleasure of the
52 governor.

53 3. Members of the ground water quality council who are not state employees shall
54 be entitled to receive compensation as provided in section 59-509(b), Idaho Code.

55 4. The council by majority vote shall establish operating procedures. The operating
56 procedures shall be made available for public review.

1 5. In the conduct of its business, the council shall solicit the advice of, and consult
2 periodically with the cities, counties, private entities and persons within the state for the
3 purpose of receiving information that may be helpful in the preparation of the ground
4 water quality protection plan.

5 6. Following final approval of the ground water quality protection plan by the legis-
6 lature, the council shall exist for up to two (2) years to see the progress made in
7 implementing the provisions of the plan. If not reauthorized by the legislature following
8 the two (2) years after the legislature's adoption of the plan, the council shall disband.

9
10 39-123. COMPLETION OF GROUND WATER QUALITY PLAN. 1. Not later than
11 June 1, 1990, the ground water quality council shall prepare a ground water quality plan
12 which shall comply with the direction enumerated in sections 39-102 and 39-120, Idaho
13 Code.

14 2. The plan shall:

- 15 a. Describe the state's overall approach to protecting its ground water.
- 16 b. Take into account existing beneficial uses and existing ground water quality.
- 17 c. Identify existing authorities and programs to protect ground water quality.
- 18 d. Propose legislative, administrative and economic mechanisms to protect ground
19 water quality.
- 20 e. Review and make recommendations on plans for development and
21 administration of a comprehensive ground water monitoring network, including
22 point of use, point of contamination and problem assessment monitoring sites across
23 the state and the assessment of ambient ground water quality utilizing, to the great-
24 est extent possible, collection and coordination of existing data sources.
- 25 f. Include programs to promote and assure public awareness of ground water
26 protection.

27 Upon completion of the plan, the council shall publish a notice after giving twenty (20)
28 days' notice as provided in section 60-109, Idaho Code, in one (1) or more newspapers
29 and shall issue a statewide news release announcing the availability of the plan for
30 inspection by interested persons. The announcement shall indicate where and how the
31 plan may be obtained or reviewed and shall indicate that not less than three (3) public
32 hearings shall be conducted at various locations in the state before formal adoption. The
33 first public hearing shall not be held until forty-five (45) days have elapsed from the
34 date of the notice announcing the availability of the plan. After public hearings, the
35 council shall prepare a written summary of the comments received, provide comments
36 on the major concerns raised, make amendments to the plan as necessary and shall for-
37 mally adopt the plan, and shall submit the plan to the legislature at the first regular ses-
38 sion of the legislature following adoption of the plan.

39
40 39-124. AMENDMENT OR REJECTION OF PLAN. The legislature shall amend,
41 adopt or reject the plan by passage of a statute at the regular legislative session when it
42 receives the plan. If the plan is amended or rejected, the legislature shall indicate the rea-
43 sons for amendment or rejection by passage of a statute and return the plan to the
44 ground water quality council. After action by the legislature, the plan shall have the
45 force and effect of law.

46
47 39-125. CHAIRMAN – QUORUM. The chairman of the council shall be the director
48 of the department of health and welfare or his designee. A majority of members shall
49 constitute a quorum for the transaction of business. In the event a vacancy occurs on the
50 council, a replacement shall be appointed in the same manner as an original member.
51 The department of health and welfare shall pay the expenses and per diem of all mem-
52 bers of the ground water quality council who are not state employees.

53
54 39-126. DUTIES OF STATE AND LOCAL UNITS OF GOVERNMENT. 1. All state
55 agencies shall incorporate the adopted ground water quality protection plan in the ad-
56 ministration of their programs and shall have such additional authority to promogulate
57 rules and regulations to protect ground water quality as necessary to administer such

1 programs which shall be in conformity with the ground water quality protection plan.
2 Cities, counties and other political subdivisions of the state shall incorporate the ground
3 water quality protection plan in their programs and are also authorized and encouraged
4 to implement ground water quality protection policies within their respective jurisdic-
5 tions, provided that the implementation is consistent with and not preempted by the
6 laws of the state, the ground water quality protection plan and any rules or regulations
7 promulgated thereunder. All state agencies, cities, counties and other political subdivi-
8 sions shall cooperate with the ground water quality council, the department of health
9 and welfare, the department of agriculture and the department of water resources in
10 disseminating public information and education materials concerning the use and pro-
11 tection of ground water quality, in collecting ground water quality management data,
12 and in conducting research on technologies to prevent or remedy contamination of
13 ground water.

14 2. Notwithstanding any other provision of law to the contrary, except as provided in
15 subsection 3 of this section, whenever a state agency, city, county or other political sub-
16 division of the state issues a permit or licenses which deals with the environment, the en-
17 tity issuing the permit or license shall take into account the effect the permitted or
18 licensed activity will have on the ground water quality of the state and it may attach
19 conditions to the permit or license in order to mitigate potential or actual adverse effects
20 from the permitted or licensed activity on the ground water quality of the state. Nothing
21 contained in this section shall authorize a state agency, city, county or other political
22 subdivision of the state to issue or require a permit or a license which it is not otherwise
23 allowed by law to issue or require.

24 3. Except as otherwise provided by the ground water quality protection plan, if a
25 permit or license which deals with the environment is required to be obtained from a
26 state agency and that agency considers the effect of the permitted or licensed activity on
27 ground water quality, after notice to other units of government which may otherwise
28 have regulatory authority over the activity which is the subject of the permit or license,
29 a city, a county or other political subdivision of the state shall not prohibit, limit or other-
30 wise condition the rights of the permittee or licensee under the permit or license on ac-
31 count of the effect the permitted or licensed activity may have on ground water quality.

32 Nothing contained in this section shall be deemed to permit cities, counties or other
33 political subdivisions of the state to regulate ground water quality with respect to any
34 activity for which another statute or other statutes may have expressly or impliedly pre-
35 empted such local ground water quality regulation.
36

37 39-127. APPLICATION OF FERTILIZERS AND PESTICIDES. No person shall be li-
38 able for ground water contamination resulting from the application of fertilizers or pes-
39 ticides if the person applies a fertilizer according to generally accepted agronomic
40 practices, or applies a pesticide product registered under the federal insecticide, fungi-
41 cide, rodenticide act according to label requirements, including precautionary
42 statements, of the U.S. environmental protection agency, and such application of the
43 pesticide or fertilizer is otherwise done with the proper equipment required by law, is
44 without negligence and is in accordance with state laws.
45

46 SECTION 3. That Chapter 65, Title 67, Idaho Code, be, and the same is hereby
47 amended by the addition thereto of a NEW SECTION, to be known and designated as
48 Section 67-6537, Idaho Code, and to read as follows:
49

50 67-6537. APPLICATION TO GROUND WATER. When considering amending,
51 repealing or adopting a comprehensive plan, the local governing board shall consider
52 the effect the proposed amendment, repeal or adoption of the comprehensive plan
53 would have on the quality of ground water in the area.
54

55 SECTION 4. SHORT TITLE. This act may be known and cited as the "Ground Water
56 Quality Protection Act of 1989."

LEGISLATURE OF THE STATE OF IDAHO
FIFTY-FIRST LEGISLATURE SECOND REGULAR SESSION – 1992

IN THE SENATE

SENATE BILL NO. 1321

BY RESOURCES AND ENVIRONMENT COMMITTEE

AN ACT

1 RELATING TO THE GROUND WATER QUALITY PLAN; PROVIDING LEGISLATIVE
2 ADOPTION OF THE IDAHO GROUND WATER QUALITY PLAN.
3

4 Be It Enacted by the Legislature of the State of Idaho:
5

6 SECTION 1. Pursuant to the requirements of Section 39-124, Idaho Code, the
7 Legislature of the State of Idaho does hereby adopt the Idaho Ground Water Quality
8 Plan finally adopted by the Ground Water Quality Council on November 14, 1991,
9 as provided in Section 39-123, Idaho Code.

IDAHO GROUND WATER QUALITY PLAN

Table of Contents

List of Council Members	1
Foreword	4
How To Use This Document	5
Public Process for Reviewing and Commenting on the Ground Water Quality Plan.....	6
Executive Summary	7
Introduction.....	11
Goals and Requirements of the Ground Water Quality Plan	13
Overview of Idaho's Ground Water.....	13
Identification of Contamination Sources	18
Ground Water Quality Policies	21
Protection	23
Ground Water Quality Protection	23
Existing and Future Beneficial Uses.....	23
Categorization of Ground Water.....	24
Ground Water Quality Standards.....	26
Prevention	29
Prevention of Ground Water Contamination	29
Agricultural Chemical and Nutrient Management.....	30
Mining.....	32
Public Education	33
Public Education on Ground Water Quality	33
Ground Water Quality Research.....	34
Government Interaction/Public Participation.....	35
Public Participation in Ground Water Activities	35
Local/State Government Interaction	35
Local/State Consistency	36
Federal Consistency	37
Interstate/Interprovincial/Tribal Agreements.....	38
Agency Roles in Ground Water Program	38
State/Local/Federal Government Coordination	39
Ground Water Monitoring/Data Information System.....	41
Statewide Ground Water Quality Monitoring Network.....	41
Regional and Local Ground Water Monitoring	42
Artificial Recharge of Ground Water Aquifers.....	43
Publicly Funded Ground Water Data Standards	43
Idaho Environmental Data Management System.....	44
Remediation of Contamination	45
Remediation	45
Liability for Costs of Remediation	46
Ground Water Quality Monitoring Program.....	49
Agricultural Ground Water Quality Protection Program for Idaho	59
References	127
Glossary	128
Appendix A.....	135
Appendix B	161

GROUND WATER QUALITY COUNCIL

List of Council Members

<i>Name</i>	<i>Representing</i>
Joe Nagel, Council Chairman Administrator, Division of Environmental Quality	Department of Health & Welfare Boise, Idaho
R. Keith Higginson Director, Idaho Department of Water Resources	Department of Water Resources Boise, Idaho
Rodney Awe Administrator, Agricultural Technology Division	Department of Agriculture Boise, Idaho
W. James Burns, Jr. Chairman, Panhandle District Health Department, Board of Health	District Boards of Health Coeur d' Alene, Idaho
Jack Lyman Executive Director, Idaho Mining Assoc.	Mining Industry Boise, Idaho
Jim Yost Assistant Director Public Affairs, Idaho Farm Bureau	Agriculture, Feedlot & Dairy Industry Boise, Idaho
Don Kramer Member, Idaho Association of Soil Conservation Districts	Soil Conservation Districts and Soil Conservation Commission Castleford, Idaho
Ned Bowler Member, Hagerman Valley Citizen Alert, Inc.	Environmental Group Bliss, Idaho
Bruce Smith Attorney-at-Law, Rosholt Robertson & Tucker	General Public Boise, Idaho
Matt Eames Sr. Legislative Affairs Representative, Idaho Power	Petroleum Industry Boise, Idaho

Jim Radford
Salesman,
Snake River Chemical, Inc.

Agricultural Chemical
Manufacturing/Distribution
Caldwell, Idaho

Jay Webb
Boise City Councilman

City Government
Boise, Idaho

Frank Krone
General Manager,
Dairyman's Creamery Association

Food Processing Industry
Caldwell, Idaho

Tom Korpalski
Risk Minimization/Loss Prevention Manager
Hewlett-Packard

Manufacturing/Hazardous Waste
Boise, Idaho

Joan Cloonan
Director Environmental Affairs,
Food Group, J.R. Simplot Co.

Hazardous Waste
Treatment/Storage/Disposal
Boise, Idaho

Nancy Johansen
Latah County Commissioner

County Government
Moscow, Idaho

Michael Ortega
Community Organizer,
Idaho Citizens Network

Conservation Organization
Pocatello, Idaho

.....*Ex-Officio Members*.....

Dale Ralston, Ph. D.,
Professor
College of Mines

University of Idaho,
College of Mines
Moscow, Idaho

Roy Mink, Ph. D.
Director Research Institute

University of Idaho,
Water Resources Research Institute
Moscow, Idaho

Warren McFall
Chief, Water Program
Idaho Operations, EPA

Environmental Protection Agency
Boise, Idaho

Jack Barraclough
Scientific Specialist, Hydrologist
EG & G Idaho, Inc.

Idaho National Engineering Lab
Idaho Falls, Idaho

Jerry Hughes
Water Resources Division,
Idaho District Chief

U.S. Geological Survey
Boise, Idaho

AGENCY SUPPORT STAFF

Significant time and resources were provided by the following agency personnel to support the Ground Water Quality Council's development of this plan.

*Idaho Department of Health and Welfare
Division of Environmental Quality
Water Quality Bureau*

Nancy Bowser
Sally Goodell
Cheryl Grantham
Paul Jehn
Gerry Winter

Idaho Department of Water Resources

Hal Anderson
Paul Castelin
Wayne Haas
John Mitchell
Ken Neely

*Idaho Department of Agriculture
Agricultural Technology Division*

Patrick McGourty
Dan Whitney

Idaho State Soil Conservation Commission

Jim Cornwell
Wayde Faude
Lee Holstine

USDA Soil Conservation Service

Floyd Bailey
Jim Wood

Boise City

Catherine Chertudi

Many other individuals, agencies and entities contributed technical expertise and resources on specific issues during development of the Ground Water Quality Plan.

FOREWORD

The Ground Water Quality Plan you have before you is the culmination of more than eight years of negotiations, false starts at regulations, legislative committee hearings, and a year and a half of meetings. For some members of the Ground Water Quality Council there were weekly meetings for several months. All members of the Council spent many days diligently learning, exploring and investigating the issues associated with ground water quality and quantity. They learned, among other things, that in Idaho, ground water is two words. The Council members endured and enjoyed many days together, in agreement and disagreement, before finally producing this plan. All deserve our acknowledgement and recognition for the enormous efforts in producing a plan that represents a progressive and sound approach to ground water quality management.

On behalf of all members of the Ground Water Quality Council, we wish to expressly acknowledge those efforts of the three agencies with major input in this plan: the Idaho Department of Health and Welfare-Division of Environmental Quality (IDHW-DEQ), the Idaho Department of Water Resources (IDWR), and the Idaho Department of Agriculture (IDA). Without the support and help of the staff of three agencies, this document would never have been possible.

Special thanks are due to the IDHW-DEQ staff assigned to the Council. They have taken the days of discussion and translated it into proposed language for the Council to revise again and again. They have provided technical, legal, editorial and clerical support.

We would also like to acknowledge the Idaho State Soil Conservation Commission, the University of Idaho Cooperative Extension Service and USDA Soil Conservation Service for their participation in meetings and contributions of important background information. We thank, in addition, participants in the Spring 1990 Ground Water Quality Monitoring Workshop who helped develop recommendations for implementing a monitoring program.

We thank the state and federal agency members of the Council who offered the support of their staff and the drafting subgroup members who helped distill hours of discussion from Council meetings into proposed draft language.

Finally, we thank the employers of those of us with full time jobs, who have been generous in giving us the opportunity to serve on this important panel. Their support is appreciated and acknowledged.

HOW TO USE THIS DOCUMENT

The following user's guide has been developed to help you understand this plan.

The plan is divided into four major parts:

- ***Executive Summary***
If you are interested in obtaining a brief overview of the entire plan, read the Executive Summary at the beginning of the document.
- ***Introduction and Background Information***
If you are interested in the need for a protection plan, an overview of ground water in the state and sources of contamination, then read the Introduction and background information sections. The background information includes the sections entitled Goals and Requirements of the Act, Overview of Idaho's Ground Water and Identification of Contamination Sources.
- ***Ground Water Policies and Implementation Strategies***
The section entitled Ground Water Quality Policies provides guidance and direction on issues that are critical to ground water protection. Each policy statement is accompanied by a rationale to explain why that issue is important to ground water protection and an implementation strategy for the policy. The implementation items provide specific direction to agencies on voluntary and regulatory protection efforts and remediation of contamination. This section provides a comprehensive guide for implementation to maintain the high quality of ground water or to remediate in the event of contamination.
- ***Ground Water Quality Monitoring Program***
If you are interested specifically in ground water quality monitoring at the statewide, regional or local level, look at the Ground Water Quality Monitoring Program. This section also provides guidelines for the ground water information data system.

PUBLIC PROCESS FOR REVIEWING AND COMMENTING ON THE GROUND WATER QUALITY PLAN

The Ground Water Quality Protection Act of 1989 created the Ground Water Quality Council and directed them to develop a Ground Water Quality Plan. This act also outlined the role that the public should play in the development process of the plan.

A public process for the Ground Water Quality Plan is specifically addressed in Section 39-123 of Idaho Code which states:

“...Upon completion of the plan, the Council shall publish a notice after giving twenty days notice as provided in section 60-109, Idaho Code, in one or more newspapers and shall issue a statewide news release announcing the availability of the plan for inspection by interested persons. The announcement shall indicate where and how the plan may be obtained or reviewed and shall indicate that not less than three public hearings shall be conducted at various locations in the state before formal adoption. The first public hearing shall not be held until forty-five days have elapsed from the date of the notice announcing the availability of the plan. After public hearings, the Council shall prepare a written summary of the comments received, provide comments on the major concerns raised, make amendments to the plan as necessary and shall formally adopt the plan, and shall submit the plan to the legislature at the first regular session of the legislature following adoption of the plan.”

The required procedural steps were followed carefully and, in some instances, expanded to provide additional opportunities for public participation. Public notices were published in six major newspapers around the state for 21 days. An aggressive public information campaign ran concurrently with the public notice and review period in an added effort to raise public awareness of the plan. A flyer was mailed out with a return card enclosed to request a copy of the plan. Over 1900 copies of the plan were distributed as a result of public requests. Public information meetings were held during July and August 1991, in Coeur d' Alene, Lewiston, Boise, Twin Falls, Pocatello and Idaho Falls, where presentations were made by Ground Water Quality Council members and agency support staff on the plan.

Following the forty-five day public review period, formal hearings were held during September 1991, in six locations including Coeur d' Alene, Lewiston, Boise, Twin Falls, Pocatello and Idaho Falls to provide opportunity for oral and written testimony. Written comments were accepted during the entire review and comment period.

The Council considered all public comments that were submitted orally or in writing and incorporated significant comments into the text of the plan. A complete listing of all public comments and Council responses received on the plan, can be found in Appendix A.

EXECUTIVE SUMMARY

While there are many federal and state laws on water quality and ground water, there is no comprehensive approach for ground water quality protection for Idaho. The Ground Water Quality Protection Act of 1989 created the Ground Water Quality Council and directed them to develop a ground water quality protection plan and a ground water monitoring program for Idaho. This legislation came about due to increasing concern over the quality of Idaho's ground water. It is the result of coordinated efforts of citizens, industry representatives and policy makers.

The twenty-two member Ground Water Quality Council is comprised of many interest groups specifically to bring a broad range of expertise to the development of the plan. The diversity of perspective and expertise created the best approach possible to consider ground water issues in Idaho.

The Ground Water Quality Plan is a planning document, and as such should be regarded as a first step in providing comprehensive ground water quality protection for Idaho. It establishes the basis for continuing efforts to protect ground water now, and for future generations. It emphasizes the need to anticipate and prevent ground water contamination whenever possible, because cleaning up ground water contamination is difficult and very costly. The plan further provides agencies with direction to develop management programs and regulations and to implement ground water quality protection strategies.

The Ground Water Quality Plan is prepared as the master plan to manage protection of ground water quality, prevention of ground water contamination and remediation of contaminated ground water. It is meant to work in conjunction with the Idaho State Water Plan. Every management plan or set of regulations currently in existence on surface water or ground water related activities will be evaluated and revised if necessary to assure consistency with the Ground Water Quality Plan.

Ground water is an essential resource for Idaho, supplying over 90 percent of the state's drinking water. Idaho ranks in the top five states in the United States for volume of ground water used, with the major use being irrigation.

Ground water is subject to contamination from many sources, both nonpoint sources and point sources:

- Nonpoint sources of contamination include urban storm water drainage, agricultural practices, and on-site sewage systems. These sources are referred to as "nonpoint" because they cannot be traced to a specific point of discharge, but come from diffuse or multiple discharges of contaminants that spread over a large area.
- Point sources of contamination have individually identifiable points of discharge. Common point sources include leaking underground storage tanks, a surface spill of hazardous materials, injection wells, and industrial discharges.

Goal and Policies of the Plan

Recognizing ground water's susceptibility to contamination, the primary goal established by the Council for the ground water quality protection plan is:

...to provide for the protection of human health and the environment by maintaining the existing high quality of the state's ground water while satisfying existing and projected future beneficial uses. All ground water shall be protected as a valuable public resource against unreasonable contamination or deterioration. The quality of degraded ground water shall be restored where feasible and appropriate to support beneficial uses....

This goal is elaborated in the following series of policies intended to provide an overall protection strategy:

- The Ground Water Quality Protection policy is intended to maintain and protect the existing high quality of the state's ground water.
- The Existing and Future Beneficial Uses policy establishes the goal of maintaining and protecting existing and projected future beneficial uses.
- Categorization of Ground Water provides three levels of protection for ground water based on vulnerability of the ground water, beneficial uses, and existing ground water quality.
- The Ground Water Quality Standards policy gives the direction needed to develop numerical standards that will provide a minimum level of protection for beneficial uses.
- Prevention of Ground Water Contamination emphasizes the need to prevent contamination of ground water from regulated and nonregulated sources of contamination.
- The Agricultural Chemical and Nutrient Management policy provides for application of agricultural chemicals or nutrients to crops so that they will not impair beneficial uses below the crop root zone.
- The Mining policy is intended to protect ground water while allowing for the extraction of minerals.
- Public Education on Ground Water Quality emphasizes the need to provide educational programs on ground water protection, prevention of ground water contamination and ground water restoration.
- Ground Water Quality Research should be conducted on ground water protection issues and remediation technologies.
- Public Participation in Ground Water Activities requires that agencies provide information to the public and encourage public participation in ground water quality protection activities.
- The Local/State Government Interaction policy requires all cities, counties and other political subdivisions of the state to integrate the Ground Water Quality Plan into their existing programs and authorizes them to implement the provisions of the plan within their local jurisdiction.
- The Local/State Consistency policy allows local units of government to have flexibility in implementing the plan while maintaining the overall consistency of ground water quality management throughout the state.
- The Federal Consistency policy establishes the same level of protection for ground water located under federal lands as other ground water in the state.

- The Interstate/Interprovincial/Tribal Agreements policy addresses the need to develop a joint plan to manage aquifers that cross jurisdictional boundaries.
- Agency Roles in Ground Water Programs will be clearly defined to enhance cooperative efforts, eliminate duplication of effort and to provide the most efficient implementation of the plan.
- The Statewide Ground Water Quality Monitoring Network policy provides the framework for implementing and maintaining an ongoing statewide ambient monitoring program.
- The Regional and Local Ground Water Monitoring policy provides the direction for implementing and maintaining ongoing regional and local ground water monitoring, including water quality monitoring to evaluate the effectiveness of Best Management Practices (BMPs).
- The Artificial Recharge of Ground Water Aquifers policy requires that artificial recharge products be consistent with the policies and management objectives for water quality and quantity in the Ground Water Quality Plan and the Idaho State Water Plan.
- The Publicly Funded Ground Water Data Standards policy assures that ground water quality monitoring and data gathering activities are consistent with the overall Ground Water Quality Monitoring Program.
- The Idaho Environmental Data Management System is being created to include data from past, present and future ground water quality monitoring projects. Any data in this system is accessible to the general public consistent with the Idaho Public Records Act.
- The Remediation policy outlines when remediation should be initiated, the extent of remediation needed and how to select the appropriate remedy taking into consideration site specific risks to health and the environment, the cost of the remediation, the technological limitations and the need to maintain or recover beneficial uses of ground water and interconnected surface water.
- The Liability for Costs of Remediation policy further describes how costs for remediation should be apportioned between responsible parties and the general public. Allocation of costs should consider causes of the contamination, whether the contamination is from past or current practices and other appropriate factors.

Ground Water Protection Approach

Protection will be achieved most effectively by preventing contamination. Prevention efforts include educating the public and industries on general ground water quality, establishing public participation, providing technical assistance, developing effective Best Management Practices (BMPs), and categorizing each aquifer or portion of aquifer throughout the state. The categorization system establishes three different levels of protection for aquifers based on existing ground water quality, vulnerability to contamination, and existing and projected future beneficial uses for that aquifer.

Voluntary approaches and education will be used whenever possible to maintain the existing high quality of ground water. If prevention approaches and education prove to be ineffective or inappropriate, regulatory approaches will be implemented. With this focus, the Ground Water Quality Standards will be developed and applied using a two level approach. The first level calls for prevention efforts when an increasing

trend in any biological, radiological or chemical constituent is observed. The second level calls for enforcement if a constituent exceeds the numerical standard.

Many known sources of contamination are already managed through existing programs. One part of a comprehensive protection approach for ground water is to evaluate existing programs with respect to ground water protection. With this in mind, sources of contamination will be prioritized based on relative risk to ground water. Using this prioritized list, existing programs will be modified and new prevention programs developed as needed to prevent contamination from sources that pose a significant risk to ground water quality.

Remediation should be conducted when contamination of ground water produces a significant potential for the impairment of an existing or projected future beneficial use and where remediation is feasible and appropriate. Remediation decisions involve determining when remediation is needed, determining the extent of remediation needed, and selecting an appropriate remedy based on health risks, cost, technological limitations and the need to maintain or recover beneficial uses of ground water and interconnected surface water.

Agricultural and mining practices present special concerns for protection of ground water because those activities may impact ground water through conventional operating procedures. This concern fostered the development of policies specifically tailored to the unique practices found in these industries while maintaining the highest level of protection for ground water.

Ground Water Quality Monitoring

Ground water quality monitoring is an essential implementation and evaluation tool for prevention, regulatory and remediation activities. A comprehensive monitoring program is a fundamental way to verify that the concepts embodied in the plan are actually working. Early detection of ground water quality problems can prevent development of more extensive problems and allows agencies and the public to mitigate potential health threats and adverse effects on beneficial uses of ground water.

Three types of monitoring are required to establish a complete picture of ground water quality. The three types are: statewide ambient monitoring, regional monitoring, and local monitoring. Each type differs in purpose, scale, and duration.

The monitoring program is intended to complement other long term monitoring programs to avoid duplication of effort and to increase the data base on ground water quality. One example of existing long term monitoring is the Idaho National Engineering Laboratory (INEL) monitoring program, which began in 1949 and has become increasingly more comprehensive over the years. Recently IDHW-DEQ has established an oversight program to review and supplement monitoring at INEL.

Other examples of long term monitoring programs are the Public Drinking Water program and the Underground Injection Control (UIC) program, which monitors the water quality in injection wells.

An environmental data management system will house the results from different monitoring efforts. Results of monitoring are to be made available to local, state and federal agencies, and to the public on request.

INTRODUCTION

Idaho ranks in the top five states in the United States for volume of ground water used. Idahoans use nearly 6,500 million gallons per day (Yee and Souza, 1984). In terms of volume, irrigation accounts for the majority of ground water used. Public and private drinking water systems account for 3% of the total ground water used, or approximately 195 million gallons of ground water per day. Ninety percent of Idaho's drinking water comes from its aquifers.

Historically, ground water has been viewed as an inexhaustible resource; a resource that is inexpensive, readily available, and invulnerable to the detrimental effects of activities occurring on the land surface. This perception led to wide use of this natural resource.

Recently, incidents of well contamination, aquifer contamination, leaking landfills and leaking underground storage tanks are creating a growing awareness among Idaho citizens of how vulnerable our ground water really is. The discovery of ground water contamination emphasizes the sensitive relationship between ground water quality and all types of land use activities.

Ground water is now perceived as a limited resource that is relatively easy to contaminate, and once contaminated, very difficult to clean up. Past and present efforts nationwide also have shown that tremendous costs can be incurred when cleaning up ground water contamination, accentuating the need to prioritize prevention of contamination over cleanup. These concerns have led policy-makers and citizens to coordinate their efforts to protect ground water as one of Idaho's most valuable resources.

The 1989 Statutory Mandate

The Idaho Legislature enacted the Ground Water Quality Protection Act of 1989. This act amends Idaho Code, Section 39-102 and adds new sections of Idaho Code, Sections 39-120 through 39-127. Also included in this act is an amendment to Idaho Code, Section 67-6537. The act calls for creation of a Ground Water Quality Council that is responsible for developing a Ground Water Quality Plan with a Ground Water Quality Monitoring Program for adoption by the legislature.

The Ground Water Quality Plan is a planning document, not a set of regulations. The act specifies that the plan should:

- “Describe the state's overall approach to protecting its ground water.
- Take into account existing and projected future beneficial uses and existing ground water quality.

- Identify existing authorities and programs to protect ground water quality.
- Propose legislative, administrative and economic mechanisms to protect ground water quality.
- Review and make recommendations on plans for development and administration of a comprehensive ground water monitoring network, including point of use, point of contamination and problem assessment monitoring sites across the state and assessment of ambient ground water quality utilizing, to the greatest extent possible, collection and coordination of existing data sources.
- Include programs to promote and assure public awareness of ground water protection.” (Idaho Code 39-120)

The act requires the IDHW-DEQ, the IDWR and the IDA to assist the Council in the development and administration of the ground water quality plan and the monitoring program. Additionally, the act stresses that all cities, counties, and state agencies of Idaho must incorporate the provisions of the Ground Water Quality Plan into the administration of their programs.

Ground Water Quality Council

The Ground Water Quality Council consists of seventeen voting members and five non-voting ex-officio members. Membership of the Ground Water Quality Council is outlined in the legislation and requires appointment of all Council members by the Governor. Council members represent a wide variety of industry, environmental, conservation and governmental groups which bring diverse expertise to the development of the protection plan.

To expedite formation of the plan, the Council chose to form three internal subcommittees to work on the major components of the plan. The three subcommittees are:

- The Protection Plan Subcommittee
- The Ground Water Monitoring Subcommittee
- The Agricultural Chemical Subcommittee

The Protection Plan Subcommittee formulated policies and strategies for management and implementation. The Ground Water Monitoring Subcommittee developed the Statewide Monitoring Program, the Regional and Local Monitoring Program and the Quality Assurance/Quality Control (QA/QC) Manual for uniformity in sampling and laboratory testing techniques. The Agricultural Chemical Subcommittee worked with the IDA and IDHW-DEQ to develop a plan to solve problems specific to urban and agricultural use of pesticides and fertilizers.

The act specifies that the Council will exist for up to two years following final approval of the Ground Water Quality Plan to observe the progress made in implementing the provisions of the plan. The Ground Water Quality Council will then disband if not re-authorized by the legislature.

GOALS AND REQUIREMENTS OF THE GROUND WATER QUALITY PLAN

The purpose of the Ground Water Quality Plan is to protect ground water quality for use by the public. The plan also provides guidance and direction to state agencies, local governments, and citizens in preventing ground water contamination. This purpose is to be accomplished by fulfilling the following goals contained in the statute:

- “Maintain the existing high quality of the state’s ground water and satisfy existing and projected future beneficial uses including drinking water, agricultural, industrial and aquacultural water supplies. All ground water shall be protected as a valuable public resource against unreasonable contamination or deterioration. The quality of degraded ground water shall be restored where feasible and appropriate to support identified beneficial uses.” (Idaho Code 39-102)
- “Prevent contamination of ground water from point and nonpoint sources of contamination to the maximum extent practical.” (Idaho Code 39-102)
- Indicate that “the discovery of any contamination that poses a threat to existing or projected future beneficial uses of ground water shall require appropriate actions to prevent further contamination. These actions may consist of investigation and evaluation or enforcement actions if necessary to stop further contamination or clean up existing contamination as required under the Environmental Protection and Health Act.” (Idaho Code 39-102)
- “All persons in the state should conduct their activities so as to prevent the nonregulated releases of contaminants into ground water.” (Idaho Code 39-102)
- “Education of the citizens of the state is necessary to preserve and restore ground water quality.” (Idaho Code 39-102)
- “Make public the results of investigations concerning ground water quality subject to the restrictions contained in section 39-111, Idaho Code.” (Idaho Code 39-120)
- “Develop a ground water quality monitoring program concurrently with the development of a ground water quality plan.” (Idaho Code 39-120)
- “Establish a system or systems within state departments and political subdivisions of the state for collecting, evaluating and disseminating ground water quality data and information.” (Idaho Code 39-120)
- “Develop and maintain a natural resource geographic information system and comprehensive water resource data system. The system shall be accessible to the public.” (Idaho Code 39-120)

OVERVIEW OF IDAHO’S GROUND WATER

Ground water is an integral part of the way of life in Idaho; it is used in many domestic, agricultural, and industrial applications in large volumes. Although ground water in Idaho is pervasive, it is a resource that is difficult to conceptualize in its natural state. Many people think of ground water existing as lakes or rivers occupying cavernous structures in the subsurface. Although ground water does exist this way (usually in limestone caves), more often ground water occupies small, usually microscopic, open spaces or pores formed between the grains that compromise soil and rock.

Units of soil and rock that are saturated with ground water are classified as either aquifers or aquitards. Aquifers are soil or rock units that have sufficient porosity and permeability to store and transmit ground water at rates fast enough to supply reasonable amounts of water to wells or springs. Aquitards are soil or rock units that do not supply reasonable amounts of ground water to wells or springs because of limited permeability.

Aquifers are recharged by infiltration of water in recharge areas. Sources of water for recharge include: precipitation, leakage from lakes, rivers and streams, and irrigation. Recharge zones commonly are areas of topographic relief such as mountains or hills. Precipitation is the main source of recharge in these areas.

As water infiltrates and accumulates in the aquifer, it begins to flow through the aquifer to an area of discharge. Discharge areas are generally topographic low points such as valleys. Aquifers discharge ground water naturally as springs and seeps, as evaporation and transpiration from plants, and as water seeping directly into gaining reaches of streams and rivers. Artificial discharge from an aquifer is produced by pumping ground water from a well.

Aquifers are classified as confined or unconfined. A confined aquifer is one that is overlain by an aquitard (Fig. 1). A confining aquitard acts both as a barrier to water seeping into the aquifer from the surface and a barrier to ground water leaking out of the aquifer.

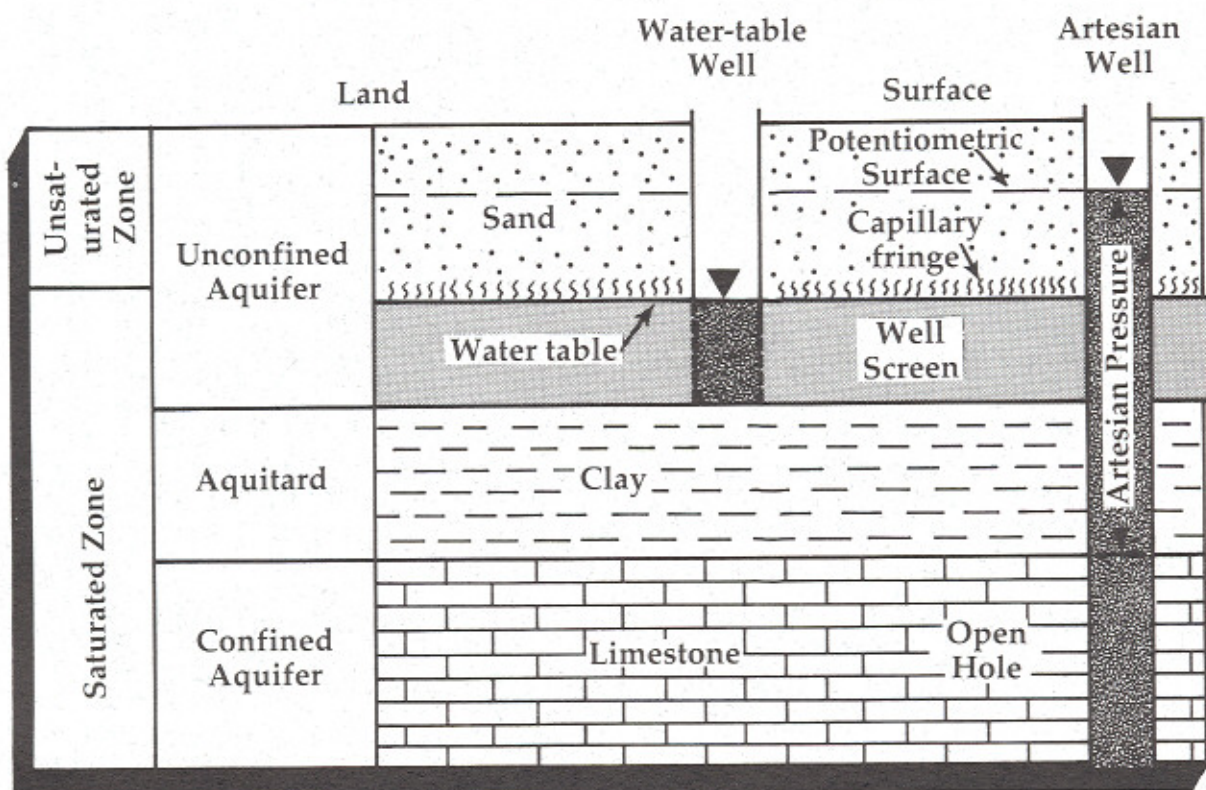


Figure 1. Diagram of a confined and an unconfined aquifer. (Modified from Health, 1989)

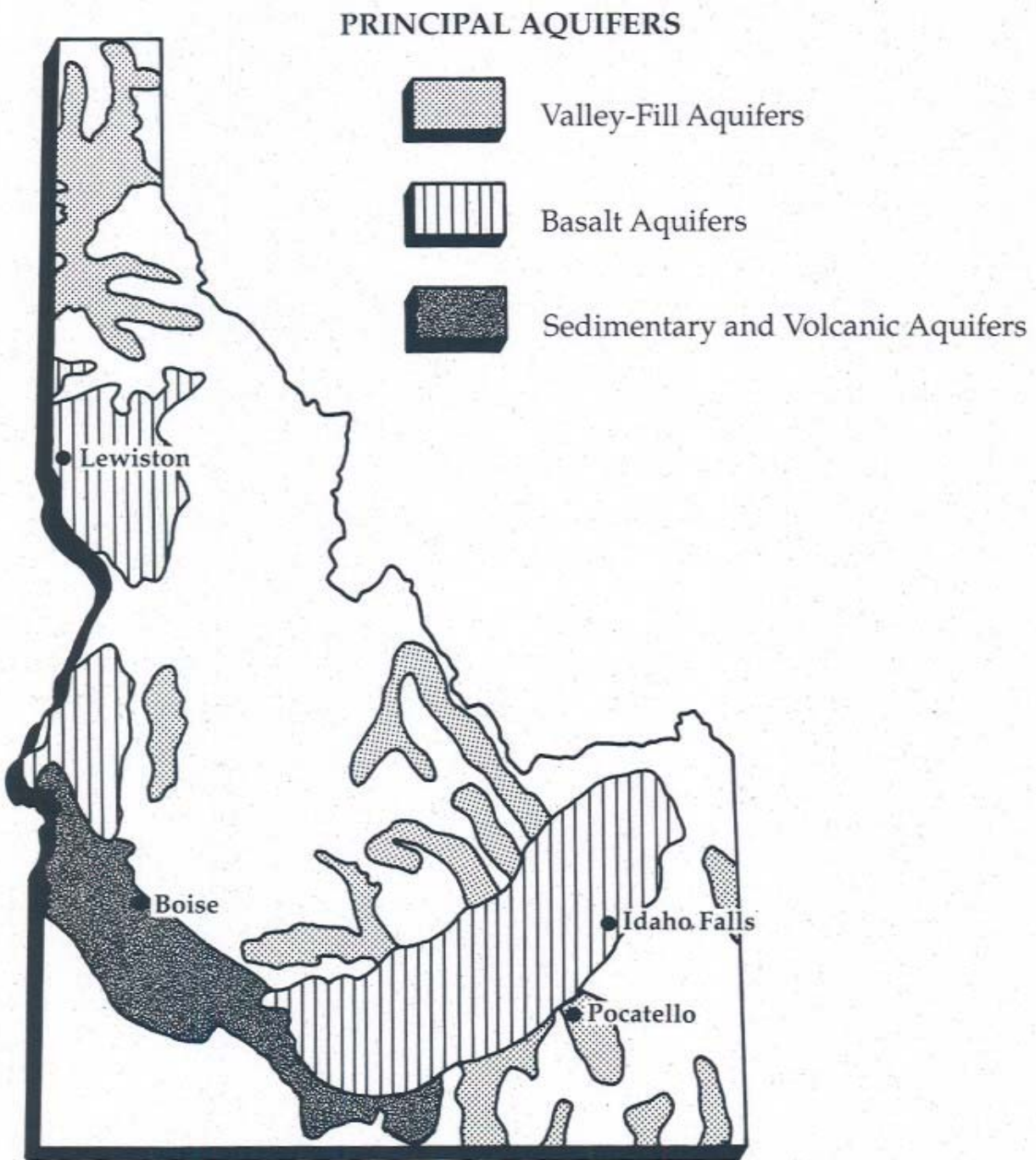


Figure 2. Generalized description and a real extent of major aquifers in Idaho.
(Modified from Parlman, 1986)

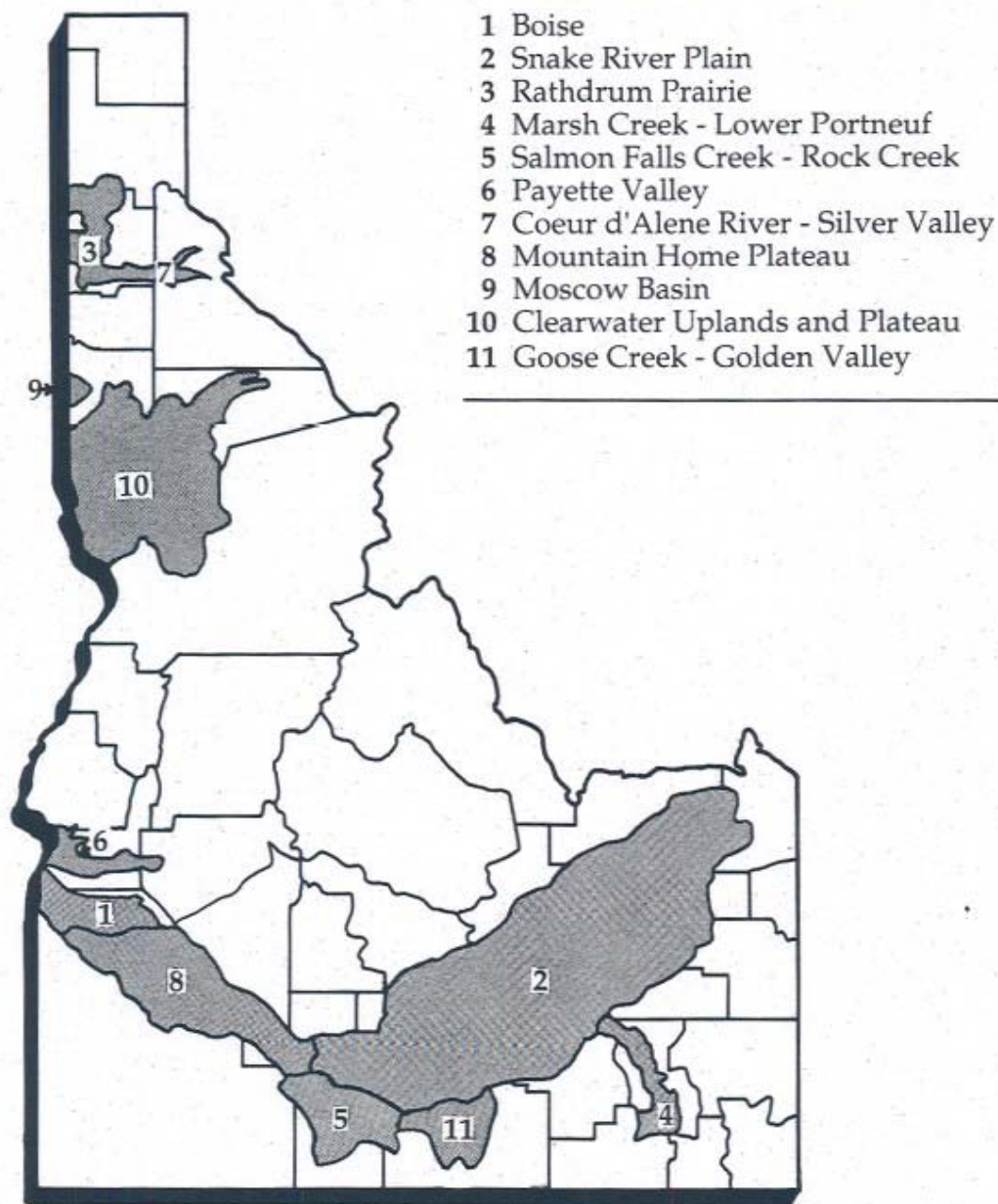


Figure 3. Locations of specific aquifers of interest in Idaho. (From IDHW, 1989)

Unconfined aquifers typically do not have confining layers between the water table and the land surface. These aquifers are referred to as water table aquifers because the top of the aquifer is not confined by an aquitard (Fig.1). In instances where the aquifer is overlain by an aquitard, the aquifer is considered unconfined if the standing water in a well drilled into the aquifer does not rise to a level higher than the contact of the aquifer and the overlying aquitard.

Types of Aquifers in Idaho

Three general types of aquifers have been defined in Idaho and each is characterized by distinctive geology. These principle types of aquifers are: valley fill aquifers, basalt aquifers, and sedimentary and volcanic aquifers (Graham and Cambell, 1981, Yee and Souza, 1984, Parlman, 1986). Aquifer location and type in the state are represented in Figure 2.

Valley fill aquifers consist of unconsolidated sediments filling the valleys between ridges of the mountainous portions of the state. Water yielding zones in valley fill aquifers are most commonly unconfined, i.e., there are no aquitards to limit downward flow of water. Recharge to ground water in valley fill aquifers is primarily from infiltration of precipitation and leakage from surface water sources. Principal valley fill aquifers are located in northern and southeastern Idaho, and in the central Idaho mountains (Fig. 2). The Rathdrum Prairie aquifer, located in northern Idaho near Coeur d'Alene, is one example of a valley fill aquifer (Fig. 3).

Basalt aquifers are characterized by numerous basalt flows and thin interbeds of sediments and/or pyroclastic volcanic rocks. Water yielding zones in basalt aquifers, which tend to be located in the interbeds between basalt flows, may be confined or unconfined. Major sources of recharge to basalt aquifers are: infiltration of precipitation; infiltration of irrigation water; and seepage from canals, streams, and rivers. The principal basalt aquifer in Idaho, the Snake River Plain Aquifer, underlies the eastern Snake River Plain and is one of the highest yielding aquifers in the state. Smaller basalt aquifers occur in the Moscow Basin and Lewiston Basin in the north, in the Soda Springs area in the southeast, and the Weiser River Basin in the southwest (Fig. 2 and 3).

Sedimentary and volcanic aquifers consist of unconsolidated sediments with basalt and rhyolitic rocks and interbedded shale and sandstone. Water yielding zones in these aquifers may be confined or unconfined. Major sources of recharge are infiltration of irrigation water and seepage from canals or rivers. Principal aquifers of this type are found in the western Snake River Plain. Other aquifers of this type are located in the southwestern portion of the state in the Boise Valley, the Mountain Home area, the Payette Valley area, and south of the Snake River (Figures 2 and 3).

IDENTIFICATION OF CONTAMINATION SOURCES

Ground water is a principal source of water for industrial, public, and rural water uses in Idaho, constituting 35% of all water used in the state. Because so many Idaho citizens rely on ground water for their many needs, it is important that this resource be protected from contamination. There are numerous potential sources of ground water contamination. The Office of Technology Assessment's (OTA) classification of potential sources of ground water contamination is presented in Table 1.

The quality of ground water in Idaho's aquifers is influenced by both natural factors and by man's activities. Natural factors that affect ground water quality include: the chemistry of precipitation; the dissolution of organic and mineral substances from vegetation, soil, and rocks as the water contacts the land surface and percolates through earth materials; and the length of contact of the ground water with soil and rocks of the aquifer.

Man's activities cause changes in ground water quality either by withdrawing water from the ground water system or by allowing chemicals and contaminants to infiltrate into aquifers. Sources of manmade contamination are generally referred to as point and nonpoint.

Point Source Contamination

A point source of ground water contamination is a source such as a surface spill, leaking underground tank, or landfill that has an identifiable point of release and zone of impact in the aquifer (IDHW-DEQ, 1989).

The potential for point source contamination in Idaho is high because major aquifers in the state are located beneath the areas of most intense land use. Most of Idaho's population resides over the Snake River Plain, Rathdrum Prairie, and Boise Valley aquifers. Contamination sources associated with population density such as leaking underground storage tanks and transportation accidents tend to be concentrated over these aquifers.

Nonpoint Source Contamination

Nonpoint sources of ground water contamination are much harder to pinpoint. A nonpoint source of ground water contamination is diffuse, and intermittent and is usually individually significant with respect to the amount of contaminants generated (IDHW-DEQ, 1989). The cumulative effect of a high density of nonpoint sources results in ground water contamination.

Potential major nonpoint sources of contamination in Idaho include: septic tank drain fields, field application of agricultural chemicals, and urban runoff. There are potentially other nonpoint sources of contamination in Idaho, however, because of limited ground water monitoring in the state and the expense of conducting extensive large scale areal sampling programs, the impact of other potential sources is poorly known at this time.

TABLE 1: POTENTIAL SOURCES OF GROUND WATER CONTAMINATION

<p><i>CATEGORY I - Sources designed to discharge substances:</i></p> <p>Subsurface percolation (e.g., septic tanks and cesspools)</p> <p>Injection Wells</p> <ul style="list-style-type: none"> Hazardous waste Non-hazardous waste (e.g., brine disposal and drainage) <p>Non-waste (e.g., enhanced recovery, artificial recovery, solution mining and in-situ mining)</p> <p>Land Application</p> <ul style="list-style-type: none"> Waste Water (e.g., spray irrigation) Wastewater byproducts (e.g., sludge) Hazardous waste Non-hazardous waste 	<p><i>CATEGORY III - Sources designed to retain substances during transport or transmission:</i></p> <p>Pipelines</p> <ul style="list-style-type: none"> Hazardous waste Non-hazardous waste Non-waste <p>Materials transport and transfer operations</p> <ul style="list-style-type: none"> Hazardous waste Non-hazardous waste Non-waste
<p><i>CATEGORY II - Sources designed to store, treat, and/or dispose of substances, or discharge through unplanned release:</i></p> <p>Landfills</p> <ul style="list-style-type: none"> Industrial hazardous waste Municipal Sanitary Open dumps, including illegal dumping (waste) Residential (or local) disposal (waste) <p>Surface Impoundments</p> <ul style="list-style-type: none"> Hazardous waste Non-hazardous waste <p>Waste tailings</p> <ul style="list-style-type: none"> Waste piles Hazardous waste Non-hazardous waste <p>Material stockpiles (non-waste)</p> <ul style="list-style-type: none"> Graveyards Animal burial Aboveground storage tanks Hazardous waste Non-hazardous waste Non-waste Containers Hazardous Waste Non-hazardous waste Non-waste Open burning sites Detonation sites Radioactive disposal sites 	<p><i>CATEGORY IV - Sources discharging substances as a consequence of other planned activities:</i></p> <ul style="list-style-type: none"> Irrigation practices (e.g., return flow) Pesticide applications Fertilizer applications Animal feeding operations De-icing salts applications Urban runoff Percolation of atmospheric pollutants Mining and mine drainage Surface related mining Underground mine-related
	<p><i>CATEGORY V - Sources providing conduit or inducing discharge through altered flow patterns:</i></p> <ul style="list-style-type: none"> Production wells Oil (and gas) wells Geothermal and heat recovery wells Water supply wells Other wells (non-waste) Monitoring wells Exploration wells Construction excavation
	<p><i>CATEGORY VI – Naturally occurring sources whose discharge is created and/or exacerbated by human activity:</i></p> <ul style="list-style-type: none"> Ground water - surface water interactions Natural leaching Salt-water intrusion/brackish water up-coming (or intrusion of other poor-quality natural water)

(from Office of Technology Assessment, 1984)

Sources of Contamination in Idaho

The threat to ground water from known and potential sources of contamination in Idaho may be determined on the basis of risk to human health and the environment. Sources of contamination may include feedlots and dairies, land application of wastewater, septic tank pumpage, radioactive substances, injection wells, geothermal wells, petroleum handling and storage and some types of mining. Both the eastern and the western Snake River Plains and the northern Idaho valleys have areas with the most intensive land use activities and the greatest potential for land or water-use effects on ground water quality.

Ground water contamination from land or water-use activities can be caused by excessive concentrations of one or more of the following constituents: dissolved solids; sulfate; chloride; fluoride; sodium; nitrogen compounds; phosphate compounds; trace metals including iron, manganese, or zinc; radiochemicals; detergents; pesticides; toxic metals such as cadmium or chromium; petroleum products; and hazardous organic chemicals including volatile organic compounds (VOCs), wood preservatives such as pentachlorophenol (Penta or PCP), and polychlorinated biphenyls (PCB's). Biological contaminants include bacteria, viruses, and parasites, most commonly giardia lamblia.

Ground water contamination problems are reviewed in an annual ground water report to the Legislature. Annual reports are available upon request from IDHW-DEQ.

GROUND WATER QUALITY POLICIES

Preamble

The twenty-two policies in this section are meant to be implemented cooperatively and concurrently to present a comprehensive framework for ground water quality management. The protection policies establish goals and criteria for protecting ground water quality. The goals of the plan are intended to assure the existing high quality of ground water and current and projected future beneficial uses will be maintained. The categories of aquifers protect ground water quality by recognizing that different aquifers need different levels of protection based on how the ground water is used and its vulnerability to contamination. The plan recommends establishing three categories of aquifers which will allow different levels of protection. Ground water quality standards are a combination of narrative and numerical values which set the maximum limits for constituents which can impact public health or the environment. The Ground Water Quality Plan is a planning document meant to provide direction to develop ground water quality regulations. Ground water quality standards will be developed as part of the ground water quality regulations and during the aquifer categorization process.

Prevention policies address various approaches to preclude ground water contamination. Ground water quality will be maintained through educational programs, increased prevention elements being added to existing programs, and development of other needed new programs. Agriculture and mining have unique needs to consider when deciding how to best prevent ground water contamination. Agriculture must be managed to protect the beneficial uses of the ground water below the crop root zone. Likewise, mining must be managed to protect beneficial uses of ground water beyond the site that minerals are being extracted. Both of these activities will be managed in a feedback loop approach. The feedback loop uses best management practices to achieve and maintain ground water quality.

Active public participation is encouraged through the development of new programs, promulgation of rules and regulations, issuance of state permits, and through use of advisory committees. Continuing opportunities for public participation will be provided as part of the coordinated management efforts for ground water quality.

Sampling conducted in the Ground Water Quality Monitoring Program indicates if the protection and prevention efforts are effectively working. Monitoring is conducted on three levels; statewide, regional, and local. Monitoring results indicate the presence or absence, and the actual amounts detected of biological, radiological and chemical constituents of concern. Monitoring data are analyzed to determine if degradation is occurring to establish ambient ground water quality and to evaluate the success of protection efforts.

Ground water contamination may occur when prevention programs are inadequate or fail altogether. The ground water contamination may necessitate remediation. Remediation is any action that will reduce ground water contamination or its effects and will be conducted based on specific criteria such as risks to human health and the environment. An important issue in ground water remediation is determining who is responsible for the costs of cleanup.

An effective ground water protection program requires that the public, which includes private citizens, businesses and all levels of government, collectively manages its activities to prevent ground water contamination.

With these issues to consider, the Ground Water Quality Council and coordinating state agencies determined that the basis of the protection plan should be general guidance for protection of ground water throughout the state. This guidance is provided through a comprehensive series of policy statements, each accompanied by an explanatory rationale and a strategy for implementation. All implementation items will be developed in a manner consistent with the provisions of the Ground Water Quality Plan. The policies are the foundation upon which future ground water protection efforts will be based.

I. PROTECTION

I-A. Ground Water Quality Protection

The policy of the state of Idaho is to maintain and protect the existing high quality of the state's ground water.

Rationale

The policy of the state is to protect ground water against unreasonable contamination or deterioration in quality, and thereby maintain suitability of such water for existing and projected future beneficial uses. The goal of the Ground Water Protection Plan is to protect ground water to the level of its existing high quality and to prevent deterioration to a lower quality.

Implementation

- Adopt the Ground Water Quality Plan and implement all provisions of the plan.
- The Ground Water Quality Plan is a dynamic document that should be reviewed and revised every 5 years to incorporate changes in technology and ground water quality issues.

I-B. Existing and Future Beneficial Uses

The policy of the state of Idaho is that existing and projected beneficial uses of ground water shall be maintained and protected, and degradation that would impair existing and projected future beneficial uses of ground water and interconnected surface water shall not be allowed.

Rationale

The policy of the state is to base protection of ground water quality on the beneficial uses of the resource. "Beneficial uses are the reasonable and appropriate uses of ground water for a purpose consistent with Idaho State laws and the best interest of the people" (IDHW, 1988, Idaho Water Quality Status Report and Nonpoint Source Assessment 1988). Beneficial uses include, but are not limited to drinking water, industrial, agricultural, mining and aquacultural water supplies.

Although maintaining beneficial uses is an important reason for ground water quality protection, allowing deterioration of ground water quality to the limits of any beneficial use is not the intent of this plan. Degradation of ground water quality below existing levels is to be viewed as a warning or indicator that surface or underground activities should be evaluated, and these activities may require modification to avoid further degradation.

It is important to also recognize the beneficial uses of interconnected surface water when evaluating protection of ground water. This policy is not intended to result in the application of surface water quality standards to ground water. The intent is to ensure that the quality of ground water that discharges to surface water does not impair identified beneficial uses of the surface water and that surface water infiltration does not impair beneficial uses of ground water.

Implementation

- Beneficial uses of ground water and interconnected surface water will be used as the basis for regulations, ground water quality standards, guidelines and management practices designed to protect or remediate ground water quality.
- Agencies that are responsible for activities that affect surface water quality should manage those activities to protect the beneficial uses of ground water.

I-C. Categorization of Ground Water

The policy of the state of Idaho is to provide differential protection for the state's ground water resources. A ground water categorization system should be established for aquifers or portions of aquifers. The categorization system should be based on vulnerability of the ground water, existing and projected future beneficial uses of the ground water, existing quality of the ground water, and social and economic considerations.

Rationale

The level of protection afforded ground water should be consistent with its present water quality, its vulnerability to contamination, its existing and projected future beneficial uses, and social and economic considerations. Categorization of ground water will allow different levels of protection to recognize the unique characteristics of aquifers and portions of aquifers within the state. While there are three levels of protection for ground water, there is only one set of ground water quality standards for the three categories. The sensitive and special use categories allows adjustments to the ground water quality standards as determined on a case-by-case basis.

Implementation

Implementation of a differential protection system involves the following five steps:

1. IDHW-DEQ, in cooperation with other appropriate agencies, should develop regulations to establish categories and levels of protection for ground water. The regulations should include the criteria for each category, a process to recategorize aquifers or portions of aquifers, and general requirements for management of activities that impact aquifers in each category. The following three categories of protection should be established:

<i>Category</i>	<i>Level of Protection</i>
Sensitive	Maintain or improve existing ground water quality through the use of BMPs and best available methods. This category provides the highest level of ground water protection.
Drinking Water	Maintain or improve existing ground water quality through the use of BMPs and best practical methods to the maximum extent practical.
Special Use	Protect current identified and projected future beneficial uses.

Certain highly vulnerable areas within any of the above categories may require special no degradation management practices. Examples may include wellhead setback areas and special recharge areas.

2. IDHW-DEQ, with technical assistance from IDWR, IDA and other appropriate agencies, should propose initial categories for aquifers and portions of aquifers based on the criteria established in this policy and in the implementing regulations. Initially all aquifers with activities having the potential to impact ground water will be categorized. Categorization for areas which currently have no activities would be initiated when an activity with the potential to impact ground water is proposed over an uncategorized aquifer. Initial categories should be adopted by rule of the Board of Health and Welfare with full opportunity for public comment as provided under the Administrative Procedures Act. State agencies should not delay actions, or deny or delay the processing or approval of any permit for an activity based on the fact that the Board has not completed the initial categorization process.
3. Regulations for changing the category of an aquifer or part of an aquifer or for establishing the category of an uncategorized aquifer should address the following considerations:
 - The process should not be so lengthy that it is prohibitive. Time frames should be established in the regulations and conditions specified if time frames are not met.
 - The burden of proof for establishing the need for recategorizing an aquifer should fall to the petitioner.
 - A process should be established for screening petitions for recategorization to assure that they are complete, appropriate, and feasible. Approval will be based on criteria outlined in the policies or regulations.
 - The recategorization should be adopted by rule of the Board of Health and Welfare using conventional administrative procedures, including a public hearing.
4. Different management strategies will be necessary for each category of ground water. All aquifers should be managed to prevent any adverse impact on the ground water quality of adjacent aquifers. All management strategies should:
 - Be developed by appropriate federal, state and local government entities and affected parties. Aquifer management should be an interagency effort using existing programs to the maximum extent possible.

- Be prepared with public participation.
 - Be enforceable when appropriate.
5. Certain areas will be designated No Degradation Management Areas. These areas are highly vulnerable, small in size and must have special management to protect the beneficial uses of the ground water. Examples of No Degradation Management Areas include wellhead set back areas and recharge areas.
- IDHW-DEQ should develop regulations for establishing and managing activities in these No Degradation Management Areas to provide statewide consistency. The regulations should be flexible enough to encourage local implementation and innovation in ground water protection strategies.
 - The government entity establishing a No Degradation Management Area should be responsible for developing, through a local planning process, a management plan consistent with state regulations or guidelines.

I-D. Ground Water Quality Standards

The policy of the state of Idaho is to establish ground water quality standards for biological, radiological and chemical constituents.

Rationale

Ground water quality regulations should reinforce the main purpose of the Ground Water Quality Plan which is to protect ground water from contamination. Ground water quality standards are needed to establish the minimum level of protection for all beneficial uses. While it is the intent of the Ground Water Quality Council that ground water quality standards be developed based on drinking water standards, it is not the intent to allow degradation of ground water to those standards. Therefore, prevention activities should be implemented when degradation of ground water quality is detected and deemed significant by the responsible state or local agencies. Agencies, in determining significance of degradation, should consider site specific hydrogeologic conditions, seasonal water quality variations, existing and projected future beneficial uses, and related public health issues. The ground water quality standards will respond to obvious man-made chemical contaminants which should never naturally be found in ground water.

Implementation

- IDHW-DEQ, with assistance from the Ground Water Quality Council, should develop regulations establishing ground water quality standards for biological, radiological and chemical constituents to provide the minimum level of protection for beneficial uses. Activities that have the potential to impact ground water quality should be managed to prevent constituents from exceeding standards. Table 2 illustrates how ground water standards should be applied through prevention and enforcement approaches to all sources of contamination.

Some but not all sources of contamination currently are managed through programs that provide ground water protection. A list of sources of contamination is provided on page 19 . Ground water protection programs may either be regulatory (Table 2 Section 1), or non-regulatory, based on guidance, management strategies or other voluntary efforts (Table 2 Section 2). Some sources are regulated for safety and environmental protection or other reasons, but may not include specific provisions for ground water protection (Table 2 Section 3a). Finally for a few sources of contamination, no program either regulatory or non-regulatory exists. (Table 2 Section 3b).

- Prevention approaches should include education, technical assistance, development and modification of BMP's using the feedback loop approach, changes to operation and management plans, or other voluntary measures suited to the source and the contaminant involved.
- Ground water quality standards should be established to protect the ground water for drinking water use. Variances from ground water quality standards should be established on a case by case basis for Sensitive and Special Use aquifers or portions thereof when the aquifer is categorized or recategorized.
- The points at which compliance with ground water quality standards is required should be established in regulations specific to a source or category of sources of contamination.
- The ground water regulations should establish a mechanism for mandatory aquifer protection to manage a local source of contamination if voluntary efforts prove inappropriate or ineffective.

TABLE 2

Program	Prevention Approach When Ground Water Quality Is Not Changing or Is Improving	Prevention Approach When Chemical Elements Indicate Declining Ground Water Quality	Enforcement Approach When Standards Are Exceeded
<p>1. Existing regulatory programs with ground water protection. Examples: UIC Cyanidation On-site sewage disposal Land applied wastewater</p>	<p>Prevention based on:</p> <ul style="list-style-type: none"> - Permit conditions - Performance standards and - Operational standards as found in existing regulations 	<p>Existing regulations will be revised as needed to allow for agency action when increasing trends are identified.</p>	<p>Existing regulations will be revised as needed so enforcement and cleanup may be started when ground water quality standards are exceeded.</p>
<p>2. Existing non-regulatory programs with ground water protection. Example: Fertilizer application (If Agricultural Pollution Abatement Plan adopted)</p>	<p>Prevention based on:</p> <ul style="list-style-type: none"> - Voluntary BMPs 	<p>Modify management practices in response to increasing trends using the feedback loop approach.</p>	<p>Develop regulatory programs as needed, depending on effectiveness of BMPs and the feedback loop process.</p>
<p>3a. No ground water protection program—program regulated for other purposes.</p> <p>3b. No existing program Examples: 3a. CAFO's Underground mining 3b. Urban runoff</p>	<p>Prevention based on:</p> <ul style="list-style-type: none"> - Voluntary efforts 	<p>Source wide concern — develop regulatory or non-regulatory programs as needed.</p> <p>.....</p> <p>Local concern— use notification, education and technical assistance to improve the practice.</p>	<p>Source wide concern — develop regulatory or non-regulatory programs as needed.</p> <p>.....</p> <p>Local concern—first notify, educate and use technical assistance; if that fails develop mandatory aquifer protection program.</p>

II. PREVENTION

II-A. Prevention of Ground Water Contamination

The policy of the state of Idaho is to prevent contamination of ground water from all regulated and nonregulated sources of contamination to the maximum extent practical.

Rationale

Prevention of contamination is generally much less costly than cleanup. Often, complete cleanup is impossible and the ground water may be impaired on a long term basis. Therefore, it is in the best interest of the state to prevent discharges of contaminants that could adversely impact the existing quality and the existing and projected future beneficial uses of ground water.

Implementation

- IDHW-DEQ, in cooperation with the appropriate agencies, should prioritize sources of contamination based on the risk to ground water. Using this prioritized list, the agencies should evaluate the effectiveness of existing programs in preventing ground water contamination. The appropriate agencies should modify existing programs and develop new prevention programs as needed to prevent contamination from sources that pose a significant risk to ground water quality. A summary of ground water programs and authorities, prepared by IDHW-DEQ with assistance from IDA and IDWR, at the direction of the council, is available as a supplement to this document.
- IDHW-DEQ, in cooperation with other appropriate agencies, should develop a statewide Wellhead Protection Program which satisfies federal requirements and is consistent with the categorization system policy and implementation statements and other prevention policies in the Ground Water Quality Plan.
- The appropriate agencies should develop educational and voluntary programs to discourage the release of unregulated contaminants to ground water to reduce or eliminate contamination from these sources.
- When monitoring data indicate a currently unregulated source of contamination is causing significant impacts on ground water quality, the appropriate agency should establish a program to prevent that contamination.
- Voluntary prevention programs that stress education and technical assistance are preferred. Regulatory programs should be developed when voluntary programs are not successful in preventing ground water contamination or fail to meet the existing ground water quality or do not meet the ground water quality goals or when the threat to ground water quality and beneficial uses is significant.
- Managing agencies should evaluate and amend existing prevention programs to assure their ability to define and implement BMPs, best practical methods, best available methods, and no degradation management practices.

- Any new protection programs should be developed to provide the managing agency with the authority necessary to develop and implement BMPs, best practical methods, best available methods, and no degradation management practices.

II-B. Agricultural Chemical and Nutrient Management

The policy of the state of Idaho is that agricultural activities utilizing agricultural chemicals or nutrients applied to the land for the purpose of agricultural crop production will be managed so that these potential contaminants will not impair existing or projected or future beneficial uses of ground water below the crop root zone.

Rationale

Ground water quality protection from agricultural chemicals and nutrients requires management of these chemicals to maximize retention within the crop root zone. Agricultural chemicals and nutrient constituents found in intermittently saturated soils within the crop root zone will not be considered ground water contaminants. Proper management of these chemicals is also necessary to prevent contamination of the underlying ground water and to assure the continued availability of nutrients and registered chemicals which are needed to benefit agricultural production.

Implementation of voluntary BMPs is expected to be the primary and most effective method of protecting ground water beneath crop root zones. If it is determined that voluntary involvement is not adequate, then a mandatory approach would be warranted.

Implementation

- The appropriate state and federal agencies with assistance from local soil conservation districts should develop application management guidelines, BMPs, and regulations for agricultural chemicals and nutrients. These processes will be developed in the following sequential order:
 1. Voluntary BMPs will be the primary method of protecting ground water below the crop root zone.
 2. The agricultural feedback loop is the method of choice to allow the development, implementation, evaluation and improvement of BMPs. The voluntary BMPs should be developed and implemented by the appropriate agencies on a site specific basis with consideration for soil and crop characteristics and needs.
 3. Based on the potential for a contaminant and suspected cause, a specific time period will be set to determine effectiveness of BMPs in maintaining and improving ground water quality.

4. Effectiveness determination will be made by appropriate federal, state and local agencies including but not limited to IDA, SCS, SCC, SCD, CES, and IDHW-DEQ.
 5. If the ground water quality trend is not improving, then mandatory participation in applying voluntary BMPs is required.
 6. If the ground water quality trend is still not improving, BMPs with more stringent protection must be applied.
 7. If there is still no improvement in the ground water quality trend, regulatory programs will be required.
 8. Regulatory actions may be needed instead of BMPs as determined by a committee of appropriate agencies, including but not limited to IDA, SCS, SCC, SCD, CES, and IDHW-DEQ.
 9. Regulatory programs will also be applied when required by law.
- Appropriate local and state agencies should develop an information and education program to facilitate the voluntary implementation of BMPs.
 - Other plans which deal with ground water protection, such as the Agricultural Pollution Abatement Plan and the State Pesticide Management Plan, are recognized as necessary implementation mechanisms for ground water protection and are to be developed or modified as necessary to be fully consistent with the Ground Water Quality Plan.
 - All local, state and federal agencies using agricultural chemicals and nutrients should evaluate their existing management practices for consistency with the Ground Water Quality Plan.
 - Preliminary recommendations for changes in agricultural programs are further detailed in the Agricultural Chemical Source Matrix Table found in Appendix B.
 - IDA in cooperation with other state and federal agencies and the Agricultural Chemical Subcommittee will continue to develop the Agricultural Ground Water Quality Protection Program for adoption by the Ground Water Quality Council. The plan shall describe the process for implementing the recommended protective strategies for potential agricultural chemical ground water contamination sources and shall describe the interrelationship of the Agricultural Pollution Abatement Plan and the State Pesticide Management Plan with the Agricultural Ground Water Quality Protection Program.
 - An interdisciplinary team of technically qualified individuals will be formed to conduct an evaluation of existing state and local ground water quality programs. The evaluation will focus on the effectiveness of these programs in protecting ground water from potential contamination from agricultural chemicals. The team will present their findings to the Agricultural Chemical Subcommittee for incorporation with the Agricultural Ground Water Quality Protection Program.

Two examples of the work included in the Agricultural Ground Water Quality Program are the Agricultural Chemical Source Matrix and a schematic diagram of the BMP Feedback Loop representing the flow of voluntary and mandatory alternatives for agricultural contaminants. These two examples can be found in Appendix B.

II-C. Mining

The policy of the state of Idaho is to protect ground water and allow for the extraction of minerals above and within ground water.

Rationale

Mining activities which could impact ground water include drilling, excavation, extraction, processing, overburden placement, waste disposal, and reclamation. Mining is unique among land use activities which impact ground water. While other activities usually occur on the land surface, mining can actually occur directly in ground water.

Mining, by its very nature, may use ground water and impact ground water quality in a localized area. The localized contamination may result in some ground water being unavailable for other beneficial uses at that specific site. Ground water and minerals are both vital to our lives. It is the intent of this Ground Water Quality Plan to strike a balance between these two resources.

Implementation

- The Department of Lands(IDL) and IDHW-DEQ, with assistance from IDWR and other appropriate agencies should develop a management strategy to protect ground water quality during all phases of mining operations. Management strategies should be developed for each type of mining operation such as surface, underground, placer, or dredge mining.
- Appropriate state agencies should develop an information and education program to facilitate the voluntary implementation of BMPs for mining activities.
- A feedback loop approach should be used to protect ground water quality while allowing mining activities to continue. The feedback loop should guide development, implementation, evaluation and improvement of BMPs for ground water protection. BMPs should be developed and implemented on a site specific basis with consideration for the hydrology, geology, and other characteristics and needs of the site.
- IDL and the Mining Advisory Committee, in cooperation with IDHW-DEQ, should develop BMPs for the protection of ground water quality impacted by mining activities. IDHW-DEQ should be the lead agency for evaluating BMP effectiveness in the feedback loop approach. The voluntary feedback loop for mining goes into the mandatory loop when ground water quality standards are exceeded.
- State regulations and laws governing mining activities should be reviewed and modified to incorporate appropriate provisions of the Ground Water Quality Plan. Ground water quality protection programs for those mining activities not addressed by state or federal regulations should be developed in accordance with policy II-A of this plan.

III. PUBLIC EDUCATION

III-A. Public Education on Ground Water Quality

The policy of the state of Idaho is to provide educational programs on ground water protection, prevention of ground water contamination, and ground water restoration.

Rationale

To maximize ground water protection at the most efficient and effective cost, the public should be informed about the reasons for preventing contamination, activities that may contaminate ground water, and ways to prevent contamination. An informed public is more likely to prevent contamination voluntarily and without the need for regulatory programs.

Implementation

- The state should establish programs to provide educational opportunities to the general public. Educational programs should cover the nature and characteristics of ground water; ground water and other resource values; tradeoffs between resource protection, economic development, and social needs; existing ground water quality; activities that may contaminate ground water; ways to prevent contamination and ground water restoration.
- Appropriate agencies should establish programs to educate specific industries on existing ground water quality, how their activities may impact ground water quality, methods to prevent ground water contamination and ground water restoration.
- Development and delivery of educational programs should use the resources of public and private entities whenever practical.
- The public should have access to ground water quality information through the annual statewide monitoring report and the annual contamination report to the legislature. IDHW-DEQ should initiate a ground water monitoring publication series for reporting results of regional and local monitoring.
- IDHW-DEQ, in coordination with other state and federal agencies, should establish a ground water quality information clearinghouse for evaluation, collection and dissemination of information.
- The university system should work with the State Department of Education and other appropriate public and private agencies to develop and deliver ground water quality programs through public and private schools.
- Education is also included as part of the implementation of policies II-A, II-B, III-A, V-A and V-B.

III-B. Ground Water Quality Research

The policy of the state of Idaho is that applied research and development programs be conducted to protect ground water quality.

Rationale

Research is needed in many areas including, but not limited to, the development of BMPs, remediation technologies and other procedures to prevent contamination of the state's ground water and to better understand the existing quality of ground water within Idaho.

Implementation

- The universities within Idaho should maintain a lead in conducting research on ground water quality issues such as BMPs and remediation technologies.
- This research should be of an applied nature and designed to better understand the factors affecting the quality of the state's ground water resources, methods to prevent deterioration of the ground water and remediation technology.
- The research should involve the appropriate local, state and federal agencies, and private corporations.
- The universities should consult with agencies, industries and the public to determine high priorities in ground water research needs.

IV. GOVERNMENT INTERACTION/PUBLIC PARTICIPATION

IV-A. Public Participation in Ground Water Activities

The policy of the state of Idaho is to provide information to encourage public participation in applicable activities related to ground water quality protection.

Rationale

Public participation is essential to assure involvement and acceptance of ground water quality protection and remediation activities. Active public participation requires an informed audience that can be involved in the decision making process. Ongoing public feedback is a key component in evaluation of program effectiveness.

Implementation

- State and local agencies should inform the public and encourage public input during development of new regulatory and nonregulatory ground water quality programs.
- State and local agencies will respond to public requests for information associated with ground water related activities in accordance with the Idaho Public Records Act.
- Public participation should be encouraged during promulgation of rules and regulations consistent with the requirements of the Administrative Procedures Act, as found in section 60-109, Idaho Code. This establishes the guidelines for public notice and public hearings.
- Appropriate agencies should encourage public participation in agency decisions through appointment of advisory committees to assist in program development and implementation.
- Appropriate agencies should use a public participation process to prepare planning documents and ground water quality management strategies to provide the opportunity for public input. Public input may consist of verbal and written comment periods before approval of new programs or issuance of state permits, and informational meetings on other agency activities when there is sufficient public interest.

IV-B. Local/State Government Interaction

The policy of the state of Idaho is that all cities, counties and other political subdivisions of the state shall integrate the Ground Water Quality Plan in their existing programs and planning activities, and are also authorized and encouraged to implement ground water quality protection policies within their respective jurisdictions.

Rationale

Many land uses that pose a potential threat to ground water quality are managed at the local level. Local government can most efficiently administer and implement some provisions of the Ground Water Quality Plan, particularly when implementation can be incorporated into existing programs.

Implementation

- IDHW-DEQ, in cooperation with appropriate representatives of state and local government, should identify ground water programs that are most efficiently administered by local government and develop mechanisms for local implementation of those programs.
- IDHW-DEQ, in cooperation with appropriate state agencies, should develop guidance for programs implemented by local governments to assure statewide consistency.
- Training and technical assistance should be provided by appropriate state agencies to local governments to assist them with program implementation.
- Mechanisms or methods should be made available to provide for local funding of the Ground Water Quality Plan.
- The comprehensive land use planning act, Section 67-6501 through 67-6537, Idaho Code, provides the framework for existing local planning activities that should continue to be used throughout the state. The comprehensive land use planning act requires consideration of each proposed amendment, repeal or adoption of the comprehensive plan and the possible effects on ground water quality in the area.

IV-C. Local/State Consistency

The policy of the state of Idaho is that local governments should assist in the implementation of the Ground Water Quality Plan under the authorities given them in the Idaho State Constitution and the Idaho Code. Local government may provide ground water protection through mechanisms appropriate to their authority to address local concerns and needs. Such mechanisms should be consistent with state laws and the Ground Water Quality Plan. Further, such local mechanisms should not impose duplicate permitting requirements on the public.

Rationale

Local government entities are members of the statewide partnership to manage ground water quality protection. Each partner should perform its respective role consistent with the overall Ground Water Quality Plan. Local government should assist in implementation of the plan under the existing authorities granted them in the Idaho State Constitution and Idaho Code.

It is the intent of this plan to prohibit local ground water protection measures which duplicate state and federal licensing and permitting requirements in order that ground water quality issues may be dealt with in the most efficient and consistent possible manner.

Implementation

- The Board of Health and Welfare has statutory authority to adopt numeric and narrative standards for ground water contaminants [Idaho Code 39-120(4)]. When the Board has adopted a ground water quality standard for a contaminant, local governments may not adopt or maintain a more stringent ground water quality standard. Any ground water quality standard adopted by a local government shall be based on findings of fact confirmed by IDHW-DEQ.
- Ground water policies and implementation strategies in this plan provide guidance for local government management efforts and should be applied uniformly statewide.
- In the interest of statewide consistency, local governments may provide only supplementary mechanisms for ground water quality measures which are necessary due to local conditions, to protect the health, safety, and well-being of the constituents they serve.
- Local governments may implement permitting and licensing requirements which do not duplicate state or federal requirements.

IV-D. Federal Consistency

The policy of the state of Idaho is that the ground water underlying all federally owned lands be provided with the same level of protection from contamination as other ground water in the state.

Rationale

It is important that all ground water of the state be provided with protection from contamination. Protection of ground water should supersede any property ownership boundaries established by man. This policy confirms the Federal Water Pollution Control Act (formerly known as the Clean Water Act), as amended, (33 U.S.C., 1323) which requires the Federal Government to meet state, interstate and local substantive as well as procedural requirements respecting control and abatement of pollution in the same manner, and to the same extent, as any non-governmental entity. In addition, Executive Order 12372 (September 17, 1983) directs the Federal government to make efforts to accommodate and foster inter-governmental partnerships by relying on state processes, to the extent feasible, for state coordination and review of proposed federal financial assistance and development projects for their effect on water quality.

Implementation

- Federal agencies should comply with the provisions of the Ground Water Quality Plan, any ground water quality standards that come from the Ground Water Quality Protection Act of 1989 and any ground water protection programs that implement the plan.
- Federal land use management plans should incorporate and implement all relevant and applicable state and local ground water protection provisions.

IV-E. Interstate/Interprovincial/Tribal Agreements

The policy of the state of Idaho is that when aquifers cross jurisdictional boundaries, the State of Idaho should participate in interstate, interprovincial or tribal agreements on ground water quality protection that address monitoring, prevention, and remediation issues.

Rationale

Aquifers that cross jurisdictional boundaries pose a special management problem. Activities may significantly impact ground water quality throughout the aquifer. It is in the state's interest to develop a joint plan for managing such aquifers to assure that protection goals and implementation strategies are compatible.

Implementation

- The state of Idaho should pursue development of interstate and interprovincial agreements between Idaho and states or provinces sharing a common aquifer. The agreement should address the minimum level of protection agreed to by both parties and outline remediation policies acceptable to both states or provinces. Appropriate state and local government agencies should participate in developing the agreement.
- The state of Idaho should pursue development of similar agreements between the State of Idaho and Indian tribal authorities for ground water quality protection where aquifers cross reservation boundaries.
- Interstate, interprovincial and tribal agreements should be evaluated and updated periodically to assure their effectiveness.

IV-F. Agency Roles in Ground Water Programs

The policy of the state of Idaho is that roles of agencies involved in ground water programs be clearly defined to eliminate duplication of effort.

Rationale

It is important that agency roles be clearly defined for efficient implementation of the plan. The complexity of issues in the plan plus the number of agencies and entities involved in implementation could lead to misunderstanding of the scope and duties of each agency, resulting in duplication of effort. The agency roles have already been generally defined by statutory language, specifically in Idaho Code 39-102 through 39-127; by Gubernatorial Executive Order; and by existing federal program delegation. Federal agencies, local government agencies, and political subdivisions should coordinate their efforts during implementation of the plan.

Implementation

- IDHW-DEQ, IDWR, IDA and other appropriate agencies should jointly develop a Memorandum of Understanding (MOU) to clearly define agency roles, enhance cooperative efforts and avoid duplication of efforts whenever possible. The MOU should be consistent with related statutory language, existing federal program delegation and Governor delegation of lead agency. One example of this is found in the statutory language which states:

“...IDHW-DEQ is designated as the primary agency to coordinate and administer ground water quality protection programs for the state. Recognizing that IDWR has the responsibility to maintain the natural resource geographic information system for the state and is the collector of baseline data for the state’s water resources, that IDHW-DEQ has the responsibility for collecting and monitoring data for water quality management purposes and that IDA is responsible for regulating the use of pesticides and fertilizers and for licensing applicators...” (Idaho Code, 39-120)

This provides IDWR with the responsibility for developing and implementing the statewide monitoring program establishes IDHW-DEQ with responsibility for regional and local monitoring which includes water quality monitoring used in evaluation of BMP effectiveness.

- Roles of other appropriate entities, such as Soil Conservation Districts, city and county governments and other political subdivisions of the state should also be clearly defined by MOU, through delegation of authority, contracts, or any other approved method.

IV-G. State/Local/Federal Government Coordination

The policy of the state of Idaho is to coordinate state, local, and federal activities to protect the quality of ground water resources of the State.

Rationale

State, local, and federal government entities are partners in the management of ground water quality protection activities. Each partner should perform its respective role consistent with all laws, regulations, and policies.

This policy recognizes that each level of government has differing roles. Coordinated implementation of ground water quality programs by state, local and federal government entities is expected to provide efficient and consistent ground water protection.

Implementation

- The State has the primary responsibility for management and protection of the quality of Idaho's ground water. The state will be responsible for characterizing ground water, assessing contaminant sources, prioritizing risks, establishing ground water quality standards, and coordinating and implementing protection and remediation programs.
- The State will evaluate the feasibility of obtaining and maintaining primary responsibility for each federally mandated program which may be delegated to the state.
- State and local governments may request federal resources and assistance to carry out their ground water protection responsibilities. Requests for financial assistance will reflect coordination of efforts and demonstrate consistency with the Ground Water Quality Plan.

V. GROUND WATER QUALITY MONITORING/ DATA INFORMATION SYSTEM

V-A. Statewide Ground Water Quality Monitoring Network

The policy of the state of Idaho is to implement and maintain an ongoing Statewide Ground Water Quality Monitoring Network.

Rationale

The purpose of the statewide ground water quality monitoring network is to characterize and identify trends in water quality of major aquifers. This will be accomplished by establishing a comprehensive network of ground water sampling sites. These sites will be sampled in a systematic and repeatable way to maximize scope and minimize overlap with other monitoring programs. The network will be part of a warning system for existing or developing water quality problems. It is not the objective of the statewide program to define or quantify regional or local problems. When potential problems or trends are identified, the IDWR will notify the IDHW-DEQ and the IDA for follow up sampling to identify the source and extent of the contamination.

Implementation

- The statewide ambient water quality monitoring network, to be administered by IDWR, should be designed specifically to not duplicate or replace any ongoing monitoring program, but to coordinate with other state and federal programs to the maximum extent practical.
- IDWR's statewide monitoring program should develop an annual plan within the guidelines established in the Ground Water Quality Plan. The plan should be reviewed by IDHW-DEQ and IDA. The plan should specify sampling objectives, probable site locations, quality assurance and quality control procedures, constituents to be evaluated, and estimated costs.
- Reports summarizing the activity and the results of the previous year's monitoring should be produced annually. A complete summary and interpretive report should be produced every five years.
- Procedures for notifying well owners and agencies when contaminants are detected must be established.
- The monitoring network should be expanded to include as many sites as possible. Sites may not be visited every year, but rotated in and out of the annual sampling as funding allows to maximize areal coverage and sampling sites.
- IDWR should provide educational products, such as newsletters and brochures, to inform and educate the public on the operation and sampling results of the Statewide Ambient Monitoring Network.

V-B. Regional and Local Ground Water Monitoring

The policy of the state of Idaho is to implement and maintain a monitoring program designed to investigate ground water quality in regional and local areas where contamination may have occurred.

Rationale

The purpose of regional and local monitoring is to investigate ground water contamination that is known or suspected to exist in Idaho's ground water. Ground water contamination is identified by several mechanisms including the Statewide Monitoring Network, individual well owners and public water supply systems. Regional and local monitoring are needed: 1) to identify and delineate ground water contamination problems which are typically local or regional in scale and may not show up on the scale of the statewide monitoring effort, 2) to determine the areal extent of ground water contamination so that the beneficial uses of the resource can be protected, and 3) to provide information, direction or prioritization to state ground water quality programs. Contaminant sources cannot be adequately identified in most cases without conducting a monitoring study that considers the hydrogeologic complexity of the region or site of the ground water quality contamination. Regional and local monitoring is also useful in determining the effectiveness of remediation activities and the effectiveness of BMPs.

Implementation

- IDHW-DEQ, in cooperation with other appropriate agencies, will prioritize regional and local monitoring projects. Regional and local monitoring prioritization will be based on imminent risk to human health and the environment, on vulnerability of the ground water, and available funding.
- Regional and local monitoring will be administered by IDHW-DEQ in cooperation with other appropriate agencies within the guidelines outlined in the Ground Water Quality Monitoring Program section of this plan.
- IDHW-DEQ, in cooperation with appropriate agencies, will prepare a comprehensive annual Regional and Local Monitoring Plan. The plan will also be consistent with the overall management goals established by the Ground Water Quality Council.
- IDHW-DEQ will publish an annual report on the regional and local monitoring results and the implications for ground water protection.
- The regional and local monitoring program should be designed and implemented specifically so as not to duplicate or replace any existing monitoring, but to coordinate with other state and federal programs to the maximum extent practical.
- Procedures will be established for notifying well owners, affected public and appropriate agencies when contaminants are detected.
- IDHW-DEQ and other appropriate agencies should inform and educate the public on the results of the regional and local ground water quality monitoring program. Information should be included on overall ground water quality, the health and environmental effects of contaminants and the management approaches that can be used to solve ground water quality problems.

V-C. Artificial Recharge of Ground Water Aquifers

The policy of the state of Idaho is that any program designed specifically for the artificial recharge of ground water, existing or proposed, be consistent with the policies and management objectives for water quality and quantity as defined in the Ground Water Quality Plan and the Idaho State Water Plan.

Rationale

Artificial recharge has the potential to significantly impact the quality of ground water. Artificial recharge of ground water has been and is going on today. A competition for Idaho water resources continues to escalate, artificial recharge of aquifers can provide an effective method of protecting existing and future beneficial uses.

Implementation

- IDHW-DEQ, in cooperation with other appropriate agencies, should develop guidelines, management practices and/or regulations to insure that artificial ground water recharge projects comply with the Ground Water Quality Plan.

V-D. Publicly Funded Ground Water Data Standards

The policy of the state of Idaho is that all publicly funded ground water quality monitoring and data gathering activities be consistent with the overall Ground Water Quality Monitoring Plan.

Rationale

There are currently several ongoing publicly funded ground water monitoring activities designed and developed to satisfy a particular requirement. Each program is unique, but the information collected is important to ground water protection and should be compatible with the ground water information system. The purpose of this policy is to provide a framework for coordination and consistency in publicly funded ground water quality monitoring.

Implementation

- All public entities should work closely with IDWR to develop the procedures for submitting and certifying their data into an electronic format that can be easily incorporated into the state ground water quality information system.
- Where appropriate, publicly funded monitoring programs should follow the quality assurance and quality control guidelines established by the appropriate agencies.

V-E. Environmental Data Management System

The policy of the state of Idaho is that an Environmental Data Management System be created to include data from past, present and future ground water quality monitoring. All data that reside in the publicly funded Environmental Management System will be accessible to the general public consistent with the requirements of the Idaho Public Records Act.

Rationale

This policy addresses legislative and Ground Water Quality Council concerns that the state incorporate and utilize data from prior, existing and future ground water quality data collection activities in a computerized system which will be made readily available to the public. The intent of the policy is to reduce or eliminate potential duplication of monitoring efforts and to increase the effective scope and depth of ground water quality monitoring programs. This policy establishes the need for data standards, procedures, and the means to store and access data in a consistent fashion.

Implementation

- State agencies, including but not limited to the IDHW-DEQ, IDWR and IDA, will establish and maintain an ongoing effort to inventory and coordinate with all ground water quality data collection programs, both public and private, within Idaho.
- A technical review committee will be established to review and classify all data to be entered into the Environmental Data Management System (EDMS). Data will be classified as to its level of confidence. Data limitations will also be identified.
- A data certification procedure will be established by which any entity wishing to have data loaded into the system assures that the data is free from any data entry errors. Since all original data entry will probably be done by an outside vendor or supplying organization, any data sets supplied to be loaded onto the EDMS must be certified by the same organization or vendor.
- The EDMS will be accessible to public and private organizations. Procedures will be established so that the management system may be accessed either on line or by means of dial up modem. Individuals or groups needing on line access will be required to do so at their own expense. A system use fee schedule will be established for transactions that require more than the supplied upload or download of data. Those without the ability to electronically access the management system will be able to receive the data they need on magnetic media upon written request.
- Design and implementation of the management system will take into account potential requests for specialized products or data processing services. These products and services may include maps, graphics, statistical and other data summary reports in either computer readable or hard copy form.

VI. REMEDIATION OF CONTAMINATION

VI-A. Remediation

The policy of the state of Idaho is where contamination resulting from human activities produces a significant potential for the impairment of an existing or projected future beneficial use of ground water, remediation should be conducted when feasible and appropriate. Decisions for when to initiate remediation, the extent of remediation needed, and the appropriate remedy should take into consideration site specific risks to health and the environment, the cost of the remediation, the technological limitations, and the need to maintain or recover beneficial uses of ground water and interconnected surface water.

Rationale

The best interest of the state is met when ground water contamination that impairs or threatens to impair beneficial uses is remediated whenever it is feasible and appropriate. Remediating contamination is an essential part of preserving the existing high quality of Idaho's ground water. In circumstances where contamination in soil has a significant potential to migrate to ground water, it is both protective of ground water and less costly to remediate the soil before the ground water is contaminated.

Implementation

- IDHW-DEQ, in cooperation with other appropriate agencies, should develop regulations for ground water remediation. In most cases remediation will not completely restore ground water to its precontaminated state, and in some situations ground water restoration may not be practicable at all. Decisions about remediation will be based on the criteria outlined in this policy. The regulations should include:
 - Conditions when remediation is needed. Soil remediation should be considered when there is significant potential for a migration of contaminants to ground water.
 - Direction for determining the remediation goal or extent of remediation required. State or federal health based standards should be used as the initial goal, followed by a second goal to provide consideration of criteria in this policy. This criteria allows the goal to be adjusted as appropriate.
 - A method for selecting an appropriate remedy. Remediation techniques can include controlling the source of contaminants, reducing the level of contaminants in the ground water by a variety of techniques, containing the contaminated ground water, treating the ground water immediately prior to use, and providing alternative water sources.
- The affected public should be notified when contamination which poses a significant threat to beneficial uses is identified and again when a remedy is selected.

- The Idaho Legislature should appropriate funds for investigation of known contamination as part of the IDHW-DEQ annual budget. These funds would be used to:
 - establish whether remediation may be needed,
 - identify responsible parties,
 - provide oversight of responsible party remediations.
 - Any ground water monitoring associated with this activity will be coordinated with the provisions of the Statewide and Regional and Local Monitoring Programs.
- A subcommittee of the Ground Water Quality Council should be established to identify funding alternatives and implementation strategies for remediation of contamination and recovery of costs when:
 - no responsible party can be identified,
 - a responsible party is partially or wholly unable to pay for remediation, or
 - a responsible party is unwilling to remediate and there is an imminent and substantial threat to human health or the environment.

Recommendations, draft legislation, or funding proposals should be presented to a standing or interim legislative committee by January 1993.
- IDHW-DEQ should provide adequate education and information to interested or impacted parties on a specific remedial action to allow informed public input on remedy selection.
- Agency decisions to seek public involvement in remedy selection should be based on the risk to public health and the environment, impacts to beneficial uses, size of the contamination problem and the level of public concern.
- Ground water quality which has been degraded by past mining practices should be restored where feasible and appropriate to support identified beneficial uses. Where restoration of such ground water is not feasible or appropriate to support identified beneficial uses, the appropriate level of government shall assure development of controls to prevent ground water use and to prevent contaminant mobility beyond an established zone surrounding the historic mining area.

VI-B. Liability for Costs of Remediation

The policy of the state of Idaho is that costs for remediation be apportioned between responsible parties (to be defined by the Idaho Legislature) and the general public through a variety of funding mechanisms. The apportionment of costs should take into account the cause of the contamination, whether the person(s) causing the contamination are identifiable and able to conduct the remediation, and whether the contamination results from past or current practices and other appropriate factors.

Rationale

An important part of remediation is determining who is responsible for the conduct and costs incurred throughout cleanup. In an attempt to find a clear strategy for assigning liability for the cost of remediation, the Council has examined the federal program as well as the strategies used by other states. There are many problems associated with these programs which include a perception of unfairness in the allocation of responsibility and a concern that a significant portion of monies designated for cleanup is used for attorneys' and consultants' fees rather than cleanup itself. The sense of the Council is that remediation is more important than spending excessive amounts of money to determine who is liable for costs. Much of the ground water contamination existing today results from past practices that often were either commonly accepted practices of the day or even authorized under a permit system. Also, part of identifying responsible parties includes providing a defense for an innocent landowner in certain circumstances. In view of the complexity of the many contamination situations that can occur, it is virtually impossible to establish a single set of rules to determine who is liable for the costs of remediation.

Implementation

Responsible party should be defined through legislation that differentiates liability for contamination from prior practices and current practices. The following are offered for consideration for legislation:

1. For contamination that occurs after the adoption of legislation, the following should be held liable for the costs of remediation:
 - The person who caused the contamination.
 - The owner of the property from which the contamination originated.
2. For contamination from past practices, the following should be held liable for the costs of remediation:
 - The person who caused the contamination.
 - The owner of the property that is the source of the contamination at the time of the onset of contamination.
 - The present owner of the property with certain defenses allowed. These defenses include:
 - Those owners or operators who had no reason to suspect, after appropriate investigation, the existence of contamination;
 - Holders of security interests who are not involved in management of the property;
 - Those owners or operators that have contamination under their property and investigation shows that the contamination originated from a source not on the property;
 - Others to be defined consistent with federal and other state law.

An innocent landowner would have responsibility to allow remediation to be conducted on the property even in the absence of liability for costs.

3. Establish a state remediation fund to pay for remediation:
 - In emergency situations when a responsible party is unable or unwilling to conduct the remediation;
 - When a responsible party can not be identified.

A mechanism should be included for the state remediation fund to recover costs from uncooperative responsible parties who are liable for remediation.

If a public fund is not established for remediation, ground water will not be remediated at all, or the definition of who is liable for remediation must be very broad (strict, joint and several liability). The preference of the Council is to incorporate the concept of strict liability and avoid the inequities of joint and several liability.

4. Regulations should be developed to determine when state remediation funds may be used. The state remediation fund should be used only when no other mechanism for funding is feasible.
5. Establish a local funding option to pay for remediation activities below a certain threshold.
6. The Council discussed several approaches to fund remediation and was unable to reach a consensus on any approach. Among suggested sources or funding were taxes on specific products, per capita taxes, and insurance requirements. No one source of funding remediation should stand alone, but rather a combination of sources is suggested.
7. The definition of responsible party liability should not affect liability under other state or federal laws.

GROUND WATER QUALITY MONITORING PROGRAM

Introduction

It is extremely important that monitoring be recognized as an integral part of the Ground Water Quality Plan. The early detection of ground water quality problems can prevent the development of more extensive problems. Early detection can aid in the mitigation of potential health threatening problems and can aid in the prevention of adverse impacts on other beneficial uses of the ground water. Monitoring is required to determine whether remediation activities are effective and whether alternate or additional remediation activities are required. A monitoring program is specified in the Ground Water Quality Protection Act of 1989 and is required to support policies I-A, I-B, I-C, V-A, V-B, II-B, II-C, and VI-A.

This section of the Ground Water Quality Plan describes the development of Idaho's ground water quality monitoring program and ground water quality database as mandated by the Ground Water Quality Protection Act of 1989. Current ground water monitoring is inadequate to provide an understanding of the existing quality of this vital resource. The Idaho ground water monitoring program is required and designed to address all of the following areas:

- “point of use” monitoring,
- “point of contamination” monitoring,
- “problem assessment monitoring sites across the state”,
- “the assessment of (statewide) ambient ground water quality” (Idaho Code 39-123).

The purpose of this section is to develop the framework for a three part monitoring program that will meet all of the requirements of the act. The framework is based in part on the recommendations expressed by Idaho ground water experts who attended a workshop conducted by the IDWR in April 1990 and on input from the Ground Water Quality Council. Workshop participants represented state and federal agencies, industry associations, consulting firms and universities. The Council consists of representatives from agriculture, mining, other industries, all levels of government, the general public, and environmental groups.

Goals of Idaho's Ground Water Quality Monitoring Program

The goals and objectives of monitoring need to be carefully defined as the first step in designing a program. The Ground Water Quality Protection Act states that the major goals of Idaho's monitoring program shall be to:

- Assess current ambient statewide ground water quality.
- Assess problem areas in ground water quality, including points of use and points of contamination.

Other reasonable and compatible goals include:

- Identify local variability so that ambient ground water quality data may be interpreted accurately.
- Collect, evaluate and disseminate ground water quality data.
- Identify trends in ground water quality over time.
- Identify any areas where use of ground water for drinking water supplies may pose a public health threat. Identify areas where other beneficial uses such as agriculture and industry uses are threatened or are not supported.
- Develop products including a geographic information system which will facilitate management decisions regarding the resource and will promote public awareness of ground water protection.

Designing Idaho's Ground Water Quality Monitoring Program — A Three Part Approach

An issue in designing Idaho's ground water quality monitoring program is data point resolution. Different densities of data are required to meet the goals of the monitoring program. For example, a closer spacing of data points is required to characterize a local or regional problem than is required to characterize the overall ground water quality of the state. In addition, a high-density statewide network, while providing excellent resolution, would be prohibitively expensive.

Historical data will be analyzed and future ground water quality monitoring programs will be designed to provide data of sufficient resolution and quality to meet the anticipated needs of users of the data to the maximum extent practical. Plans for the development and administration of a comprehensive ground water quality monitoring program shall use "to the greatest degree possible, collection and coordination of existing data sources" (Idaho Code 39-120).

A three-part monitoring approach is proposed to address the issue of data resolution. The three-parts are; (1) Statewide Monitoring, (2) Regional Monitoring, and (3) Local Monitoring. The three parts are designed to complement each other by allowing different degrees of resolution of data. Any one part taken by itself will fail to address the mandates of the statute as well as the needs of the data users.

The three parts differ in purpose, scale, and duration. Different questions can be answered by each part as shown in Table 3. Most importantly, knowledge gained from each part can and will be used to improve the other parts. This approach is consistent with policies V-A and V-B and supports policies II-B, II-C, and VI-A.

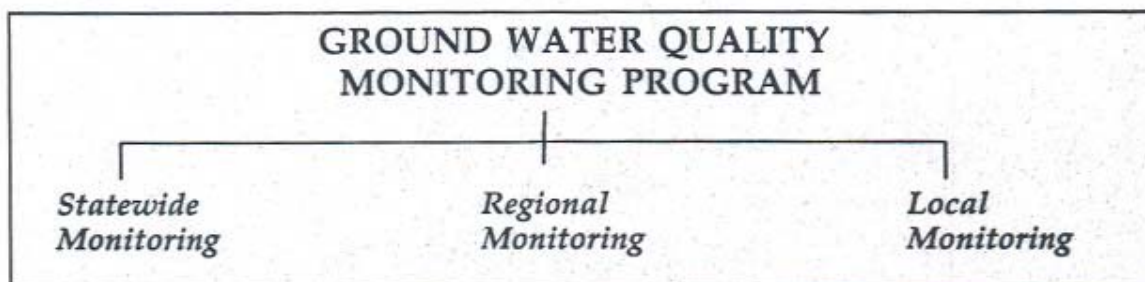


Figure 4. Parts of the Ground Water Quality Monitoring Program

	Area of Monitoring	Monitoring Duration	Types of Questions Monitoring Will Answer	Lead Agency
Statewide Monitoring	Statewide	Long term ongoing	What is general statewide ambient ground water quality? What are the trends over time? Are there problem areas that need more detailed monitoring? What are background levels? Is ground water generally suitable for drinking, agricultural, and industrial purposes?	IDWR
Regional Monitoring	Areas of high vulnerability, 10-250 square miles	Typically 1-5 years per area	What is ground water quality in areas of highest vulnerability? How much variability is there in ground water quality in these areas? How widespread are the problems? What needs to be addressed by applying BMPs? How effective are the BMPs?	IDHW
Local Monitoring	Areas of contamination incidents, less than 10 square miles	Typically 1-5 years per site (except where duration specified by state or federal statute)	Are there point-source impacts such as leaking underground tanks, chemical spill, or landfill? Once the area is identified and problem isolated is the management plan working to rectify the problem? Are additional studies needed? Monitoring may be required on a local scale to evaluate the effectiveness of BMPs.	IDHW

Table 3. Comparison of the three parts of the Ground Water Quality Monitoring Program

I. Statewide Monitoring

The statewide or Ambient Ground Water Quality Monitoring Network will characterize the water quality of the state's aquifers. This part is also designed to identify long-term trends in ground water quality. The network will obviously detect some potential water quality problems; however, these problems will be evaluated by the regional and local monitoring parts of the overall program. Statewide monitoring supports policies and is consistent with policies I-A, I-B, I-C, and V-A.

The network design is based on subdividing the state into about 20 hydrogeologically similar regimes. This approach is necessary because the hydrogeology in Idaho is extremely variable. The regime approach establishes smaller, more homogeneous ground water basins within which analyses of data can be done with greater reliability.

Existing wells and springs will be used as monitoring sites because construction of dedicated wells, though preferred, would be prohibitively expensive. Wells must have reliable construction data (total depth, casing depth(s), screened interval(s), etc.) and a driller's log. Wells having some historical ground water quality data will be preferred for the network. Monitoring sites must be available for year-round sampling and be available into the foreseeable future.

Monitoring sites will be distributed statewide throughout as many aquifers as possible; however, major aquifers will be emphasized. Each regime's population, size and known water quality variability will be considered when determining the number of sites per regime. Within each regime, areas of greatest ground water vulnerability (i.e., the shallowest aquifers) will receive the greatest number of monitoring sites.

Only ground water less than 26° Celsius (78.8° Fahrenheit) will be monitored, since thermal waters having temperatures greater than this are mineralized and not usually used for drinking water supplies.

Initially, all ground water samples will be analyzed for organic, radioactive, and bacterial constituents as well as pesticides, nutrients, and volatile organic compounds (Table 4). Monitoring sites will be re-sampled on a 1 to 3 year schedule depending on the initial water quality results. As the program develops, some wells will be sampled several times a year to better define seasonal variability. The testing procedures in Table 4 for radionuclides, pesticides and microbiology are general screening methods; results provide indications of biological and chemical concentrations. If these screens indicate constituent values above the normal range; additional analysis may be performed.

To be successful and cost effective, a certain degree of flexibility must be built into the network design and operation. For example, the initial number of sites per regime and the frequency of sampling per site will be evaluated as water quality data become available. These parameters will be readjusted as needed to assure that the water quality for each regime can be evaluated statistically.

Table 4. List of chemical constituents, properties, and compounds analyzed for the statewide ground water quality monitoring network.

A. Inorganic constituents - primary including some common ions		
Arsenic	Fluoride	Phosphorus
Bicarbonate	Iron	Potassium
Cadmium	Lead	Selenium
Calcium	Magnesium	Silica
Chloride	Manganese	Sodium
Chromium	Mercury	Sulfate
Copper	Nitrate (as N)	Total dissolved solids
Cyanide		
B. Properties of ground water - field analyses		E. Organic compounds
Alkalinity	pH	Gas chromatograph
Specific conductance	Temperature	analysis for 43 volatile
		organic compounds
C. Microbiology		F. Pesticide scan
Fecal Coliform*		Immunoassay screen for
		triazine, aldicarb, 2,4-D,
		and alachlor pesticides*
D. Radionuclides		
Gross alpha*	Gross beta*	
Radon		
NOTE: Analyses were recommended by the Ground Water Monitoring Workshop, April 1990, modified by the IDWR and approved by the Ground Water Monitoring Subcommittee.		
* These parameters or tests are used as general indicators of ground water quality; they are not absolute indicators of the ground water quality.		

II. Regional Monitoring

The purpose of regional monitoring is to acquire data to address trends in greater detail or higher resolution than the statewide ambient network is designed to provide. Whereas the statewide network may only select 3 to 6 wells in a particular county, a regional project may select 50 to 200 wells in the same area. This approach is used in areas of high vulnerability or areas of particularly intensive land uses that may impact ground water. The project areas range in size from 10 - 250 square miles and project duration is limited to periods sufficient to gain an understanding of the local ground water quality and potential sources of impact, typically 1 to 5 years. Usually a limited suite of parameters tailored to local land uses is analyzed.

Regional monitoring is integral to meeting the legislative mandate to assess problem areas in ground water quality. Regional monitoring is required to support and is consistent with policies I-A, I-B, I-C, V-B, II-C, and VI-A. The resolution of the statewide network will in most cases be inadequate to accurately identify, delineate and explain ground water quality problems at the regional level. For example, if one well in the statewide network is found to have a high nitrate level, it may be incorrect to conclude that the region around that well (for which there are no other immediate sampling points) also has high nitrate. Regional monitoring provides the degree of detail needed to interpret the actual distribution of nitrate in the area. The statewide ambient network plays a valuable role in identifying regions in need of further intensive monitoring.

Another screening tool that will be used in the selection of regional monitoring project areas is the ground water vulnerability data being prepared as a cooperative effort between IDHW, IDWR, USGS and the Soil Conservation Service (SCS). The vulnerability of ground water has been evaluated based on data for soils, aquifer recharge and depth to first encountered ground water. Composite maps of vulnerability data rank areas that are potentially susceptible to ground water contamination. These maps have been prepared for the entire Snake River Plain. Studies are expanding the data base to include other major aquifers in Idaho.

Regional monitoring is most useful in evaluating nonpoint source impacts; that is, those dispersed and individually low impact sources that may cumulatively degrade ground water quality. Monitoring will identify contaminants that need to be addressed by the implementation of BMPs. Regional and/or local monitoring, in conjunction with the application of BMPs, will reveal whether BMPs are effective (policies I-C and II-B). Existing BMPs can be refined and new BMPs can be designed to protect the quality of the ground water if adequate monitoring is an integral part of the process. Ineffective practices may continue in the absence of appropriate ground water quality data.

III. Local Monitoring

The third part of the ground water monitoring program is called local monitoring and it involves data collection at the greatest degree of detail or finest resolution. This type of information cannot be obtained from either the statewide or regional monitoring which are designed to evaluate ground water on a larger scale, however statewide and regional monitoring may identify sites where more detailed studies are needed. Local monitoring most effectively addresses the legislative mandate to monitor “point(s) of use” and “point(s) of contamination”. Local monitoring supports and is consistent with policies I-A, I-B, I-C, V-B, II-B, II-C and VI-A.

Local monitoring involves sampling at and around individual sites of known or suspected contamination. It is this type of contamination that creates the greatest impacts on public health and raises the greatest degree of concern among the public. Project areas are typically less than 10 square miles and may be as small as several acres. Project duration is short, usually less than 5 years and possibly as short as a few months. Where local monitoring is conducted in response to a particular regulatory program, the areal extent and duration may exceed these ranges because of legal requirements.

The primary purpose for local monitoring is the investigation of point source impacts; those contamination incidents where a discrete point of release and zone of contami-

nation can be identified. Typical examples are a leaking underground storage tank, a chemical spill on the land surface, a ruptured petroleum pipeline, or leachate from a landfill. These problems are often discovered because one or two wells in a neighborhood become contaminated.

Local monitoring will answer several questions about a contamination incident including:

- Where is the source of contamination?
- How large is the contamination plume?
- Which direction is the plume moving and are domestic or other wells threatened?
- Are cleanup measures working and when can they be stopped?

In other instances, local monitoring may be used when there has been no contamination. Rather, monitoring is conducted to ensure that impacts are not occurring or to give an early warning if slight increases in contaminants are noted. Examples of this are the monitoring conducted at landfills, at sites where wastewater is applied to the land surface, and around underground storage tank areas. Monitoring of this type is often required as a condition for obtaining a permit or activity.

Some site-specific monitoring is funded by private parties in conjunction with the operation of a facility or with enforcement actions for cleanups. In addition, federal funds are provided under the Leaking Underground Storage Tank (LUST) cleanup fund and Superfund (Comprehensive Environmental Response, Compensation and Liability Act or CERCLA) for specific types of monitoring. However, contaminated wells are identified each year which need investigation to characterize the problem.

IV. Information System for Ground Water Quality Data

Idaho Code Section 39-120 recognizes that the IDWR maintains a natural resource geographic information system for the state. Also included in the code is the directive to include ground water quality data in the IDWR system. The code directs that the “system shall be accessible to the public”. Any system implemented should be easily accessible and report or output oriented. The information system will support the needs addressed in Policy V-E. There are potentially many users of this data management system including state and federal agencies, consultants, industry, environmental and political organizations and to the general public. As the system develops, overall demands and needs of the users will determine its capabilities. In general, the system will be designed to be easy to use by persons with varying computer skills. The system will include simple and well-documented help screens and assistance information. It also will include procedures for requesting special products or services in the form of technical support, data reports or maps.

The information system, proposed to be called the Environmental Data Management System (EDMS), must be usable for determining long-term trends. The system will include data collected specifically for the state-funded monitoring programs and data from other sources, including historic data. Data to be entered into the system must be certified and then categorized according to its level of confidence.

Certification involves a verification procedure that assures the data residing on the IDWR system is correct. The organization that submits data must certify that the data are accurate and free of data entry errors.

Categorization involves assigning a level of confidence to all data that will reside on the information system. Levels of confidence will be assigned for all data based on the field techniques used to collect the data, and on the analytical procedures used to analyze the ground water samples.

The basic system will emphasize the greatest amount of flexibility at the user level. It will provide both on-line access and analysis and/or download capability for processing on another work station or personal computer.

Ground Water Data Technical Review Committee

A ground water data technical review committee will be established. The purpose of the group is to review all ground water quality data that will be submitted to the IDWR for inclusion in the statewide ground water information system. The primary objective of the group will be to review the data for the level of confidence that can be assigned to the data. The committee also will prioritize the information which will be entered. The committee will address the needs expressed in policies V-D and V-E.

The committee shall be composed of hydrogeologists or senior ground water quality analysts from the IDHW, IDWR, and IDA. The committee also should include a representative from the USGS, the Idaho Water Resources Research Institute (IWRRI), one private industry representative and at least one representative from the general public. The private industry representative and the general public representative may rotate annually among those firms and groups that are willing to participate. The representative must possess expertise in hydrogeology. IDWR will chair the committee and will be responsible for its administration and coordination.

Data submitted through the INEL oversight program will be accepted into the data base without further review; however, this separate approval shall be so identified in the database. The INEL oversight program will have a separate review group that will function in a similar manner as the technical review committee. Both data review groups will use the same levels of data certainty.

Quality Assurance/Quality Control

The Technical Review Committee will review all ground water quality data submitted for inclusion in the statewide ground water information system to insure that the QA/QC objectives were met during the investigation. All sampling activities are required to have a QA/QC plan prior to conducting the investigation. The plan shall address field sampling activities and laboratory or field analyses of samples. Policy V-E requires that the data submitted for inclusion in the EDMS meet certain requirements that mandate the development and use of appropriate QA/QC plans.

Field QA/QC

All field instruments will be calibrated before each sampling event in accordance with procedures established by the manufacturer of that instrument. Calibration records will be maintained with all field measurements. Replicate samples, trip blanks, and spikes will be collected as required for trace constituents, radionuclides and organic scan analyses for a percentage of sites sampled. A preservative blank shall be included where appropriate. If an immunoassay pesticide scan method or other field kit method is used, a duplicate for a percentage of sites sampled will be collected and analyzed using a separate method. Detailed QA/QC guidelines will be reviewed and updated as necessary by IDHW, IDWR, and IDA. Procedures and techniques established in the QA/QC guidelines will be followed where applicable for all state-funded monitoring programs.

Laboratory QA/QC

Quality assurance practices dictated by the appropriate analytical method and following certified laboratory procedures where appropriate will be complied with for all analyses. The specific analysis method for each constituent will be documented and will remain consistent with prevailing technology and the purpose of the sampling.

Quality assurance practices of the certified lab(s) will be followed. Holding times for samples will comply with those shown on Table 4-1 of the U.S. Environmental Protection Agency Technical Enforcement Guidance Document. Laboratories used will be required to provide both QA/QC and sampling results data in an approved electronic format for input into the state's information system.

REFERENCES CITED

- Graham, W. G., and Cambell, L. J., 1981, Ground Water Resources of Idaho; Idaho Department of Water Resources, 100 p., 2 plates.
- Heath, R. C., 1989, Basic Ground Water Hydrology; U.S.G.S Water-Supply Paper 2220, 84 p.
- Idaho Department of Health & Welfare, 1989, Idaho Water Quality Status Report and Nonpoint Source Assessment 1988; Idaho Department of Health and Welfare, Division of Environmental Quality, Water Quality Bureau, 170 p.
- Jehn, P., 1988, Rathdrum Prairie Aquifer Technical Report; Idaho Department of Health and Welfare, Division of Environmental Quality, Water Quality Bureau, 97 p.
- Office of Technology Assessment, U.S. Congress, Washington, D.C.; "Protecting the Nation's Ground Water from Contamination," OTA-0-233, October, 1984, pg. 45.
- Parlman, D.J., 1983, Ground Water Quality in the Western Snake River Basin, Swan Falls to Glens Ferry, Idaho; USGS Water Resources Investigation 83-4062, 85 p.
- Parlman, D.J., 1986, Idaho Water Quality; USGS Water-Supply Paper 2325, p. 229-236.
- State of Idaho, Idaho State Legislature, 1989, The Ground Water Quality Protection Act of 1989; Idaho Code Section 39-102 — 39-127, and Chapter 65, Title 67, Section 67-6537.
- U.S. Environmental Protection Agency, 1986, RCRA ground water monitoring technical enforcement guidance document (TEGD); National Water Well Association, 208 p.
- Yee, J. J. S., and Souza, W. R., 1984, Quality of Ground Water in Idaho; USGS Open-file Report 83-50, 78 p.

GLOSSARY

Agricultural activity/Agriculture — Any activity conducted on land or water for the purpose of producing an agricultural commodity, including crops, livestock, trees, and fish.

Agricultural chemical — Any pesticide, nutrient and fertilizer used for the benefit of agricultural production or pest management.

Agricultural Pollution Abatement Plan — Also known as the Ag Plan, is authorized under Section 319 of the Clean Water Act. The Ag Plan addresses agricultural nonpoint source pollution concerns in the state. It describes the nonpoint source concerns associated with irrigated cropland, nonirrigated cropland, grazing/riparian and concentrated animal feeding operations. The plan identifies component practices that have been demonstrated to be effective when used to develop best management practices to address agricultural nonpoint source pollution.

Agricultural waste — Any waste product or by-product produced as a result of an agricultural activity.

Ambient — The water quality at a specific location at the time sampled.

Aquaculture — The cultivation of the natural produce of water such as fish, shellfish or plants.

Aquifer — A geological formation of permeable saturated material, such as rock, sand, gravel, etc., capable of yielding economically significant quantities of water to wells and springs.

Artificial recharge — Recharge of water to an aquifer at a rate greater than natural resulting from the deliberate actions of man.

Background concentration — is defined in two different ways:

- **Natural background ground water quality** — The ground water quality unaffected by man.
- **Site background ground water quality** - The water quality directly upgradient of a site.

Baseline — Ground water quality at a point in time and place that is used as a point of reference.

Beneficial uses — Various uses of ground water in Idaho including, but not limited to, domestic water supplies, industrial water supplies, agricultural water supplies, aquacultural water supplies and mining. A beneficial use is defined by actual current uses or future uses of the ground water.

Best available method — Any system, process, or method which is available to the public for commercial or private use to minimize the impact of point and nonpoint source contaminants on ground water quality.

Best management practice — A practice or combination of practices determined to be the most effective and practical means of preventing or reducing contamination to ground water and/or surface water from nonpoint and point sources to achieve water quality goals and protect the beneficial uses of the water.

Best management practice feedback loop — A process to develop, implement monitor and evaluate the effectiveness of best management practices which are adopted for the protection of ground water quality. This process provides for the continued improvement or refinement of practices to achieve ground water quality goals.

Best practical method — Any system, process, or method that is established and in routine use which could be used to minimize the impact of point or nonpoint sources of contamination on ground water quality.

Cleanup — The removal, treatment or isolation of a contaminant from ground water through the directed efforts of humans or the removal or treatment of a contaminant in ground water through management practices or the construction of barriers, trenches and other similar facilities for prevention of contamination, as well as the use of natural processes such as ground water recharge, natural decay and chemical or biological decomposition.

Confined aquifer — A geological formation in which water is isolated from the atmosphere by an overlying less permeable geological formation. Confined ground water is generally subject to pressure greater than atmospheric; thus, the water level rises above the top of the aquifer.

Contaminant — Any chemical, ion, radionuclide, synthetic organic compound, microorganism, waste or other substance which does not occur naturally in ground water or which naturally occurs at a lower concentration.

Contamination — The direct or indirect introduction into ground water of any contaminant caused in whole or in part by human activities.

Crop root zone — The zone that extends from the surface of the soil to the depth of the deepest crop root and is specific to a species of plant, group of plants or crop.

Degradation — The lowering of ground water quality as measured in a statistically significant and reproducible manner.

Feedback loop — See definition under best management practice feedback loop.

Fertilizer — Any substance containing one or more plant nutrients which is used for its plant nutrient content and/or for promoting plant growth, including limes, gypsum and manipulated animal and vegetable manures.

Ground water — Any water of the state which occurs beneath the surface of the earth in a saturated geological formation of rock or soil.

Ground water quality standard — Values, either numeric or narrative, assigned to any contaminant for the purpose of establishing minimum levels of protection.

Indian tribe — Any Indian tribe having a federally recognized governing body carrying out substantial governmental duties and powers over any area.

Injection well — An excavation or artificial opening in the ground which meets the following three criteria;

- A bored, drilled or dug hole, or a driven mine shaft or a driven well point; and
- Deeper than it is wide; and
- Used for or intended to be used for injection.

Level of confidence — Reflects the confidence level that is appropriate for data. It in turn reflects the quality assurance level achieved during data collection and the analytical level achieved during sample analysis.

Local government — Cities, counties and other political subdivisions of the state.

Local monitoring — Any investigation of areas of known or suspected contamination on a scale from a single site to less than ten square miles.

Nonpoint source — A potential source of contamination having diffuse or multiple discharges of contaminants that are spread over a large area.

Nonregulated releases — Contaminants knowingly or unknowingly discharged from one or more sources which are currently not regulated.

Nutrient — Any substance applied to the land surface or plants which is intended to improve germination, growth, yield, product quality, reproduction, or other desirable characteristics of plants.

Perched aquifer — Unconfined ground water separated from an underlying main body of ground water by an unsaturated zone.

Person — Any human being, any municipality or other governmental or political subdivision or other public agency, any public or private corporation, any partnership, firm, association, or other organization, any receiver, trustee, assignee, agent or other legal representative of any of the foregoing, or any other legal entity.

Pesticide — (1) Any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or (2) any substance or mixture of substances intended for use as a plant growth regulator, defoliant, or desiccant. Insecticides, herbicides, fungicides, rodenticides, fumigants, disinfectants and plant growth regulators are all identified as pesticides.

Point source — A potential source of ground water contamination which is individually identifiable in terms of point of release and zone of impact in the aquifer.

Political subdivision — The state of Idaho, or any corporation, instrumentality or other agency thereof, or any incorporated city, or any county, school district, water and/or sewer district, drainage district, special purpose district or other corporate district constituting a political subdivision of the state, any quasi-municipal corporation, housing authority, urban renewal authority, other type of authority, any college or university, or any other body corporate and political of the state of Idaho, but excluding the federal government.

Projected future beneficial uses — Various uses of ground water such as drinking water, aquaculture, industrial, mining or agriculture that are practical and achievable in the future based on hydrogeological conditions, water quality, future land use activities and social/economic considerations.

Recharge area — An area in which water infiltrates into the soil or geological formation from precipitation, irrigation practices and seepage from creeks, streams, lakes etc. and percolates to one or more aquifers.

Regional monitoring — Investigation of areas of known or suspected contamination on a scale of 1 to 10 to about 250 square miles.

Remediation — Any action taken (1) to control the source of contamination, (2) to reduce the level of contamination, (3) to mitigate the effects of contaminants, and/or (4) to minimize contaminant movement. Remediation includes providing alternate drinking water sources when needed.

Restoration — Measures taken to return a site to pre-contamination conditions.

Saturated zone — A zone or layer beneath the earth's surface in which the interconnected pore spaces of rock and sediments are filled with water.

Shallow injection well — An injection well which is less than or equal to eighteen (18) feet in vertical depth below land surface.

Sole source — A protective aquifer designation established by Section 1424(e) of the Safe Drinking Water Act and applied by the U.S. Environmental Protection Agency to an aquifer considered to be the sole or principal drinking water source for a geographic area and which, if contaminated, would create a significant hazard to public health. This has no bearing on the state categorization system.

State Pesticide Management Plan — A plan developed to address the use of pesticides which have been identified by EPA as having potential to result in ground water contamination. Plan components include prevention measures, monitoring, response to contamination and enforcement mechanisms to be implemented for specific pesticides. The SMP is part of a ground water protection strategy authorized under the Federal Insecticide, Fungicide and Rodenticide Act.

Unconfined aquifer — An aquifer in which there is no confining bed between the zone of saturation and the land surface. The upper surface of the saturated water body is called the water table. The water pressure is atmospheric.

Unsaturated zone — Zone or layer of earth in which not all of the interconnected pore spaces of rock or soil are filled with water.

Urban and nonagricultural chemical use — Application of agricultural chemicals for other than crop production purposes, including right-of-way, non-cropland, industrial, and residential pest control.

Wellhead — The physical structure, facility, or device at the land surface from or through which ground water flows or is pumped from subsurface, water-bearing formations.

Wellhead protection area — The surface and subsurface area surrounding a wellhead or well field, supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or well field.

Wellhead setback area — An area immediately surrounding a wellhead in which potential sources of contamination are controlled or restricted.

ACRONYMS USED IN PLAN

APA	Administrative Procedures Act
APAP	Agricultural Pollution Abatement Plan
ARS	Agricultural Research Service
ASCS	Agricultural Stabilization and Conservation Service
BMP	Best Management Practices
CAFO	Confined Animal Feeding Operation
CECLA	Comprehensive Environmental Response Compensation and Liability Act
CES	Cooperative Extension Service
DEQ	Division of Environmental Quality
DOT	Department of Transportation
EDMS	Environmental Data Management System
EPA	Environmental Protection Agency
FBL	Feedback Loop
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act
FOTG	Field Operation Technical Guide
GWR	Ground Water Review
HMB	Hazardous Materials Bureau
IDA	Idaho Department of Agriculture
IDHW	Idaho Department of Health and Welfare
IDHW-DEQ	Idaho Department of Health and Welfare, Division of Environmental Quality
IDL	Idaho Department of Lands
IDT	Idaho Department of Transportation
IDWR	Idaho Department of Water Resources
IERC	Idaho Emergency Response Commission
INEL	Idaho National Engineering Laboratory
IWRRI	Idaho Water Resources Research Institute
MCL	Maximum Contaminant Level
MOU	Memorandum of Understanding
NDMA	No Degradation Management Area
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
ppb	Parts per Billion
ppm	Parts per Million
QA	Quality Assurance

QC	Quality Control
RCRA	Resource Conservation and Recovery Act
SARA	Superfund Amendment and Reauthorization Act
SAWQP	State Agricultural Water Quality Program
SCC	Soil Conservation Commission
SCD	Soil Conservation District
SCS	Soil Conservation Service
SMP	State Pesticide Management Plan
UIC	Underground Injection Control Program
USDA	United States Department of Agriculture
USGS	United States Geological Survey
UST	Underground Storage Tank
WHPP	Wellhead Protection Program



PRINTED ON RECYCLED PAPER

IDHW / IDA-1000, 12/96